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Thursday, July 21, 1983

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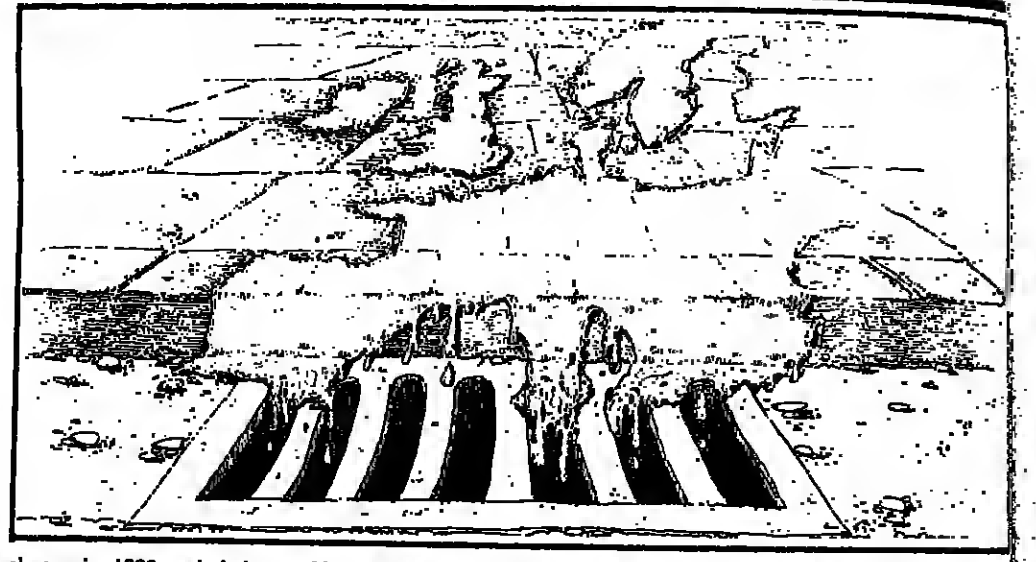
Report highlights 'tragic nature' of Europe's IT record

Is Europe going down the drain?



by John Riley

A HARD-HITTING report by two top economists to the European Parliament recently lashed out at the "tragic nature of Europe's poor performance in the field of information technology".

The 130 page report, commissioned by the Parliament, was written by the right wing Principal of the London Business School, Professor James Ball, and the left wing French economist Michel Albert. Both agree that Europe is going the way of the Balkans after the first industrial revolution.

They think that Europe is "slipping on the downward path of relative underdevelopment until ultimately it will be no more than a geographical expression." This is arising because Europe is not pooling its resources and is failing to respond to the challenge of what they call the third industrial revolution.

Both Albert and Ball agree that Europe has to get its act together by encouraging high technology industries, ensuring European wide technical standards, and broad R & D programmes, as well as proposing a series of monetarist aims.

The European Parliament is likely to debate the report in September, and the document could influence future policy. Socialist Euro-MP Barry Seal has reservations: "It is an interesting academic exercise but probably won't be too effective as European countries now are working together less closely than in the past."

Both authors point to the failure of R & D in new technology, which they believe has been "squandered" and concentrated in "yesterday's sectors". That is illustrated by Japan capturing 40% of the world microprocessor market between 1977-81 with an R & D budget of $250 million for microprocessor development while Europe has only gained 10% of the market with a $500 million budget.

Pointing to Europe's $10,000 million deficit in information and electronics 1982 trade balance, Albert calls for an increase in the community R & D budget to about $20,000 million by 1993.

He believes the current R & D programmes are inadequate: "The Esprit programme although a useful step in the right direction, is "ridiculously small", he said, "and if R & D continues to be organised at a national level it will become less and less competitive."

Ball hit out at European companies: "It is a clear nonsense that the major European companies in the field are busy signing agreements for Japanese technology rather than undertaking a programme of European integration," he said.

They both identified the vicious circle Europe is in. Europe is not manufacturing enough IT equipment and foreign imports are flooding in. The imports cause job gain in the US and in Japan, but job loss in Europe.

Job loss drains Europe's resources and intensifies resistance to technological progress, and so on.

"One only needs to look at the debacle Europe has suffered in information technology to understand that there are only a few years left to indulge in this particular self-destructive game of every man for himself," concluded Albert.

■Leader Comment – page 15.

Five want new PBX standard

by John Riley

FIVE top PBX and computer companies are to adopt a new interface standard to link computers and PBXs announced last week in the US by its developers Northern Telecom and Digital Equipment.

Computer manufacturers Data General and Hewlett-Packard and digital PBX makers Rolm, Mitel and Intecom have announced their commitment to develop the interfaces worked out by Northern Telecom and DEC.

The standard, called cPI (computer to PBX interface), is based on the North American T-1 carrier standard originally developed by Bell Laboratories, which allows computers and PBXs to be separated over a transmission link and to be connected remotely.

The standard cannot be used for remote connection in Europe, as the T-1 carrier is a standard 24-channel digital transmission system adopted for the North American public telecommunications network.

It transmits at 1.544 Mbits as opposed to the European PTT system which transmits at 2.084 Mbits and which is a 30+2 channel system.

Although he was not able to say whether Northern Telecom and DEC are working on a similar interface for Europe, Richard Lewis, Northern Telecom's product manager for Business Communications Systems in Europe thinks that "there is likely to be strong pressure from European PABX suppliers and computer manufacturers to go to the 30+2 standard at 2.048 Mbits for a similar interface."

A Northern Telecom spokesman said that UK licencees GEC and Reliance would be free to further develop the product and would be entitled to take advantage of US development work – although it would be up to them.

Apple blocks Taiwan move

by George Black

APPLE has blocked an application for details of one of its micro operating systems to be revealed to a Taiwanese manufacturer.

The application was made by Sirtel (UK), British importer and distributor of the Micro Professor machine, made in Taiwan by Multitech. Apple is bringing a copyright infringement action seeking damages from Sirtel.

For Sirtel, Shipley told the High Court that it had found itself in "an extremely odious position" in the middle of the dispute.

It had realised that the Micro Professor was compatible with the best-selling Apple II, which might cause problems. But Multitech had assured him there had been no copying.

It had been unable to evaluate Apple's "pretty damning allegations" without getting a full explanation from Multitech.

He applied for an order allowing disclosure of details of Apple's system to Multitech. But Apple's counsel Guy Burkill told the court it did not want the information to be released in case it became "a copyist's charter".

And Mr Justice Whitford, ruling in Apple's favour, said he was not prepared to make any order which would mean information "getting straight back to Taiwan" at this early stage of the case.

The hearing is scheduled to go ahead next Wednesday. Apple will claim its programs have been copied for use on the Micro Professor.

Apple wants an interim injunction to stop Sirtel selling the machine. The firm now has complaints against 21 Taiwanese firms. A spokesman said: "Apple is now engaged in a series of cases against pirates right the way round the world. There are likely to be more in this country but I prefer not to discuss them at present."

IBM sales policy pays dividends

OPEL . . . Strong growth.

by John Kavanagh

IBM'S emphasis on sales rather than rentals continues to pay dividends. The industry leader's half-year results show an 18% increase in business to almost $17,880 million and 24% growth in net profit to $2,319 million.

Last year IBM confounded financial analysts with a spectacular recovery from a mediocre year in 1981.

That recovery included a 30% increase in sales business and a mere 2.6% growth in rentals.

That trend is even more marked this year. At the half-year stage the company's sales income has risen by 47%, while rental business has fallen by 13%.

Chairman John Opel picked out the growing sales income as a big contributor to the half-year results.

And he said IBM's growth was stronger now than at the same time last year.

Products highlighted by the half-year report include the 308X big mainframe range and the 3380 high-capacity disc systems. Both "continue at high volumes worldwide".

At the other end of the product line, the Personal Computer "continues to exceed projections", while display terminals "continue strong".

Opel added that, despite the recession, worldwide demand for information products and services remained strong.

Included in the half-year results are IBM's second quarter figures. Income was up 19% at $9,590 million and net profit increased 25% to $1,343 million.

ICT dispels doubts about its desk-top

by Philip Hunter

ICT ON Monday demonstrated its long-promised offering in desk-top communications and removed lingering doubts about the product's existence. But it may not be able to produce and sell it.

ICT is desperately short of cash and, unless money can be raised quickly for promotion, the product, called Triemco 2000, could suffer an early death.

The company will find it difficult to raise money from shareholders after a bitter dispute over share pricing on the Luxembourg stock exchange.

And the company's credibility has been hit by the behaviour of its share dealers, Tring Hall, which last week had its licence to issue shares withdrawn.

ICT managing director Cecil Kernot admitted that financing the product was going to be difficult: "We won't ask the shareholders for more money, because I don't think we'll be able to get it."

He added that he would be attempting to raise funds in the US, where he also expected Triemco 2000 to be more successful because of the greater liberalisation of the telecommunications market.

The product will be available in the UK after September, but will not be successful here until it wins approval from British Telecom. The Department of Industry says that it might provide a grant for the product to be built in the UK if British Telecom approval is forthcoming.

At present the unit will be built in Hong Kong by Conic under a joint venture with ICT. The assembly will be supervised by a company called Trend Communication in Hong Kong, which is jointly owned by ICT and Conic with a market value of $3.2 million.

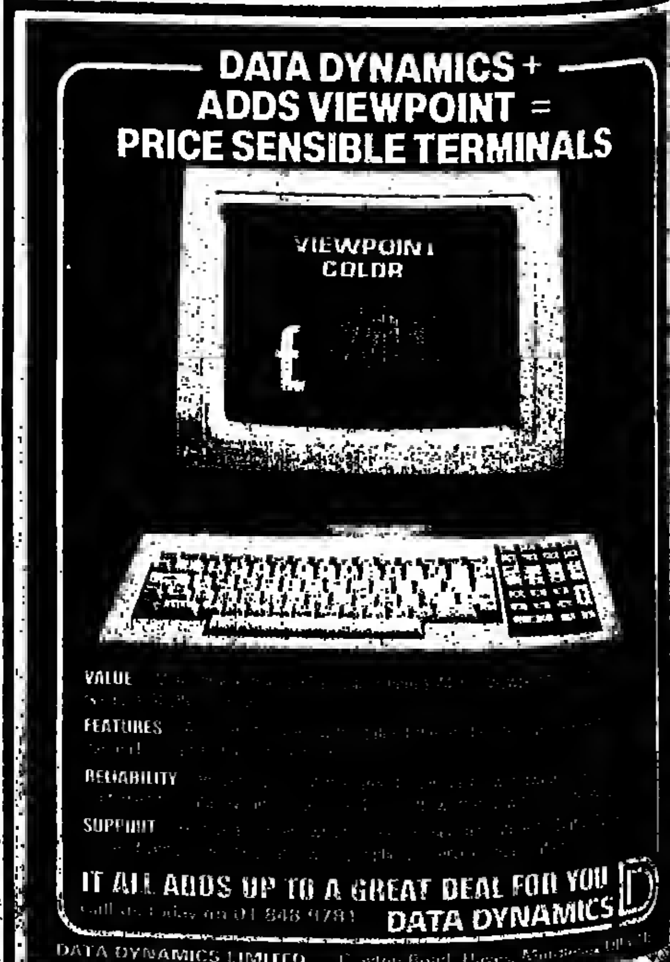
The product will be marketed by Triple M, which is a wholly-owned subsidiary of ICT.

Triemco 2000 has a touch sensitive keyboard for entering and editing messages that are displayed on a small four-inch screen. There is also a "hands-free" speaking facility, and memory for 32 frequently used numbers to be dialled automatically.

The box can also be used to access Prestel and has a small printer for text or graphical data.

Triemco 2000 costs $1,000, making it cheaper than its main rival from Northern Telecom.

ICT has also launched a portable handset called Triembo 1000 that can be used for dialling and receiving telephone calls, as well as acting as an intercom.



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ComputerWeekly

Thursday, July 28, 1983 Number 870 35p

Former Calma man goes on US blacklist

by Kevin Cahill

CALMA, the CAD/CAM subsidiary of US electronic giant General Electric is facing a major US customs investigation as ex-Calma France sales manager Felix Popovitch is placed on the US exports denials list.

Popovitch's appearance on the list, which effectively bans him from any involvement with American technology was overlooked by Calma France and only came to light when Popovitch accepted a job with another American company Daisy Systems four weeks ago.

Within days of Popovitch's papers turning up at the Daisy offices in California staff there spotted his name on the list and he was advised that he could not join the company.

Popovitch then told Calma France that his resignation was a mistake, but Calma France had by then heard of the serial order and refused to rescind his resignation. Popovitch appeared on the denial list under his own address and alongside the names of private companies through which the US customs officials allege that Popovitch was shipping highly sensitive microelectronic technology to Eastern Europe.

At Calma France Popovitch was the sales manager for microelectronics in Southern Europe.

His job took him all over the continent and US customs officials are concerned that he may have arranged for Calma microelectronics technology and information to reach Eastern Europe through Switzerland and Italy, having first laundered the products through dummy front companies.

In one operation stolen letterheading from the French Central Electricity Generating Board were used to raise purchase orders for US technology.

Although the US authorities say that there is no direct evidence at this time that the group did take technology from Calma, the matter is being looked into. Calma is a leading producer of advanced Computer Aided Design and computer aided engineering equipment, with offices in the UK, the US and all over the continent.

The company begun its operations in the field of microelectronics and still has and sells critical micro software and technology.

It is in the area of design and manufacture that the most critical weaknesses exist in Eastern Bloc countries technology and US investigators feel that the likelihood that Popovitch would have considered his position in Calma and failed to ship goods, is low.

Popovitch was with Calma for about 18 months, and prior to that worked for a number of other American computer companies. General Electric, which is handling the matter for Calma strenuously denies that Popovitch was doing anything illegal while he was at Calma, or with Calma products, but he was active with his front companies at the same time he was with Calma, according to the US authorities.

Popovitch is only one of five figures named by US Commerce Department officials in what is one of the biggest cases of its kind to break in over a year. The other individuals named include two Frenchmen, Jean Didat and Granada L. Molri and two Americans, Michael D'Ormigny and Joseph Lusky.

According to the US Commerce Department Popovitch made the arrangements to raise payments and ship goods from a front company in Lichtenstein called Hedera. The Lichenstein company was linked with a company at Paris' De Gaulle airport called Cotricom which accepted goods, shipped them to a Swiss company formed by Lusky, and then to Eastern Europe.

The operation is reckoned to have been going on for between three and five years' and US officials say that millions of dollars of controlled and highly sensitive computer and electronic technology has been shipped East.

OAKLEY . . . Named team.

Alvey projects may begin by autumn as firms unite

by John Kavanagh

UK FIRMS are queuing up to take part in the government's Alvey Programme for research into the next generation of computing – and showing a new willingness to work together.

And several Alvey projects could be under way by mid-September even though programme director Brian Oakley only named most of his team last week and they do not start work until August.

But computing and electronics firms still doubt whether the 50% government funding is enough to tempt them into those areas of research with little immediate payback.

Three of the full-time directors are from GEC, ICL and Logica. They are on secondment for two years initially – and are being paid by their firms.

See also page 6 and Leader Comment, page 13.

"We're talking to several companies every day and we are even a little concerned about being snowed under with proposals," said the programme's deputy director, Laurence Clarke from GEC.

He added that the EEC's Esprit joint research programme had got UK firms used to the idea of collaboration.

Geoffrey Lomer, technical director at Racal Electronics, agreed. "There is already co-operation going on – but it wouldn't have happened to the same extent without Alvey," he said.

Clarke is setting up half a dozen big demonstration projects in industry, defence, medicine and social services to act as focal points for work in the relevant technologies. One of these projects is likely to involve the Department of Health and Social Security's plan to introduce expert systems to assess benefit claims.

A quick start is also planned for the software engineering and microelectronics areas. Computer-aided design will be part of the microelectronics project – and information technology minister Kenneth Baker said the state-owned Inmos electronics firm could play a part here with its computer-based design aids in Bristol.

The mixture of industry and government as directors was welcomed by computing firms – but there were still doubts about funding. The government is putting £200 million into the programme over five years.

"The 50% is fine for the attractive areas," said Ferranti manager Wilf Robinson. "But firms will be reluctant to put their scarcest resource – good research scientists – into projects with no quick payback."

Meanwhile, the Alvey Programme is planning a network linking the main research centres to make collaboration easier through ready access to shared information.

Full-time directors joining Brian Oakley, the overall director, and Laurence Clarke are: Derek Barber of Logica, who heads communications and infrastructure, David Talbot from ICL in charge of software engineering, Dr William Fawcett from the Ministry of Defence, who heads very large scale integration work in electronics, Dr David Thomas from the Science and Engineering Research Coun-

■ Continued on back page.

ICL goes big in US

ICL BROKE into the North American mass market on Tuesday with a multi million dollar a year deal with the world's largest micro retailer, Computerland.

The US-based 450 plus chain of franchise micro shops is to sell ICL's DRS 20 series of distributed micros for recommended sale in all of its shops worldwide, with special emphasis on more than 350 in the US.

The US shop chain will sell ICL's training packages and other OEM products, as well as the DRS 20 and its software.

It is the biggest deal yet signed by the ICL Trader Point division according to director Ray Piggott, in charge of selling ICL's machines to OEMs.

Chuck Hansen, managing director of Computerland's 34-strong European operation said that the deal would cover the high end applications of Computerland's clients and allow the franchise chain to address more sophisticated business users.

The US chain claims to open a new high street store every other day.

Mercury goes international

INFORMATION technology minister Kenneth Baker announced that Mercury will be allowed to provide international services in competition with British Telecom. And BT at once protested at the lifting of restrictions on its private rival. So far Mercury has been forced to lease lines and operate through BT, limiting its international services.

Shares are unsold

CITY investors have failed to take up shares in Technology for Business, formerly the UK arm of troubled French peripherals maker Logabax, leaving 66% of the stock unsold.

Warner's loss

LOSSES on micros and video games have given Warner Communications a $283 million deficit in its second quarter, compared with a $68 million profit last year. The European arm of the computing subsidiary Atari was profitable; the problems were all in the US, where Atari lost $310 million.

Fisher leaves Prime for Encore 5

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Data General merges the mini and the micro

de CASTRO . . . *Big claim for the software.*

by George Black
DATA General last week launched a dual processor machine at the bottom of its range which it says will end the distinction between the mini and micro.

The Desktop Generation will incorporate both Data General's own micro Eclipse chip — claimed to be comparable in power to Motorola's 68000 — and the Intel 8086 on which IBM's successful personal computer is based.

The announcement marks Data General's re-entry into the small computer market after its miscalculated Enterprise project. The Enterprise, built on the 16-bit Nova chip, was initially overpriced and lacked software support.

Savage but belated price-cutting failed to shift the boxes off the shelves. This time Data General has acknowledged the first commandment of computer law, that purchasing decisions are software-driven, by making its micro CP/M and MS-DOS compatible.

The microEclipse chip, which handles all I/O functions, is said to enhance the 8086, making it appear to run faster than other micros. The combination supports five operating systems.

Introducing the machine, president Ed de Castro said that no manufacturer has yet offered desktop micros integrated into the world of minis, superminis and mainframes.

"This will bring the strongest array of software available on any desktop," he said.

The family of three — models 10, 20 and 30 — undercuts IBM by a small margin, with an entry level of £2,500. It is the Model 10 which features the dual-chip system, the other two being Eclipse-dedicated.

Vice-president Robert Miller said Data General believed the dual-chip hardware was a unique invention which it would be seeking to patent.

Model 10, by supporting both Microsoft's MS-DOS and Digital Research's CP/M-86 operating systems, gives users access to the vast libraries of IBM-compatible applications programs now being turned out by independent software authors.

They also have access to Data General's own mini software systems MP/AOS, RDOS and AOS, which Data General claims are more popular among users than the acclaimed Unix.

The system can support [illegible] users at once, so that one [illegible] running a Peachtree program [illegible] der MS-DOS while three [illegible] using AOS to carry the Comprehensive Electronic Office [illegible] Data General's package [illegible] rating word processing [illegible] electronic mail.

John Crawford, general [illegible] division vice-president, said [illegible] firms had invested hurriedly [illegible] first generation of desktop [illegible].

"All too soon the limits [illegible] personal computers became [illegible] vious — when their capa[illegible] were exhausted there was [illegible] to go," he said.

Shipment both to the [illegible] Europe will start in Sep[illegible] from the North Carolina [illegible]. Production will also be under[illegible] later this year in Hong Kong.

Mini manufacturers step up sales drives

BROUGHTON . . . *Realistic.*

by John Riley
TWO mincomputer manufacturers, Wang and Norsk Data, both stepped up their third party sales drive last week.

Wang is concentrating on the lower end, drumming up high street dealers to sell its Professional Computer, while Norwegian company Norsk Data is aiming at systems houses to sell its minis.

Following its recent seminar for potential dealers in London, Wang last week held a similar seminar in Manchester for about 25 selected dealers.

Reg Broughton, Wang UK's director of marketing support services, told them that Wang intends to give its dealers 90% of the small business market (under £5 million turnover), 50% of the medium market, and 10% of the big accounts (over £150 million).

Wang is balancing its direct and third party sales organisation through its Independent Sales Organisation which has been set up to ensure there is no conflict.

Wang hopes to have a network of about 80 dealers. It has about 20 lined up already. Vic Kitchener, ISO manager UK, affirmed that Wang would not muscle in if dealers win large accounts.

The company does not expect its new dealers all to succeed. "I expect realistically that about 10% will go to the wall," said Broughton. "They will expand too quickly, and overextend themselves." Broughton added that Wang's aim is to become a $5 billion company by 1990, and of this 20% will be direct sales.

Wang's unaudited figures for 1982 are $1.53 billion, a 32% increase on last year. Wang UK is celebrating because it broke through the $100 million order mark, and had revenues of about £50.9 million, an increase of 47% over last year.

The main effort is towards the Professional Computer, for which the company has a budget target of 5,000 next financial year.

Since its launch in Janauary, about 350 have been sold, although the machine has only been available in volume since April.

The Professional Computer will be the focus of a battery of announcements coming up this autumn, an aperitif of which includes the three port RE232 board for the PC, and IBM 3270 emulators launched at Anaheim in the US. They are being anglicised and will be launched in the UK next month.

Norsk Data, the Norwegian minicomputer manufacturer, started its push to attract OEMs and systems houses last week by giving a seminar in London to about 30 OEMs.

Jim Allen, Norsk's commercial sales group manager, outlined the advantages to OEMs of signing up with Norsk Data. "We give [illegible] pound discount based on [illegible] value, not on the number of [illegible] sold," he said. "Our dis[illegible] range from 20% on sales [illegible] £100,000 to 32½% for sa[illegible] over £500,000."

"Norsk Data does not com[illegible] with its OEMs," he assured [illegible]. "Our sales force is not bo[illegible] ven and won't muscle in on [illegible]. He wants about 10 OEMs [illegible] offers incentives to attract the[illegible].

Neither Norsk Data nor [illegible] expect their systems houses [illegible] have exclusive relationship[illegible] them. "We don't expect [illegible] ity," said Broughton, and [illegible] Data's marketing director Richard Norton agreed.

BTG eyes spelling bee

by George Black
AN expert system to monitor spelling which was developed at Bradford University may be adopted by the British Technology Group.

Expert Speller derives from a PhD project by David Fawthrop and has been in use at the university since last October.

In 80% to 90% of spelling errors the system knows what you meant to put, claims Fawthrop, who has set up ADAT (Artificially Intelligent Devices and Techniques) in Halifax to market it.

BTG officials who have seen and approved the system now want Fawthrop to produce a business plan, which he will have drawn up by the autumn.

He investigated more than 1,300 spelling errors and found that they broke down into a small number of categories for which rules could be written. Those rules were written into a Fortran program to prevent the system suggesting unlikely words when a mistake was made.

Hitched up to the program are a 55,000 word dictionary and a 2,000 word subset of its most commonly used components. Any word used which cannot be matched in the database is compared to possible authorised alternatives with similar spellings.

"Most packages around to date have been pretty terrible and come up with crazy alternatives," said Fawthrop. "This is the first genuinely intelligent system to cope with that. People have been complaining that there are so few expert systems that are useful — well, here's one that is."

The program was written in Fortran because Fawthrop considered Prolog only suited to much bigger databases. It runs on DEC's Vax mini under the Unix operating system and on Control Data 170/700 machines under NOS. Soon Fawthrop is going to the University of Wales to convert it for Vax under the native VMS operating system.

Lords won't alter protection

by our Parliamentary Correspondent
LAST week saw a flurry of Parliamentary activity relating to information technology. Government ministries reported on their computer plans (see page 5) and the two houses got down to dealing with two major bills; the Telecommunications Bill in the Commons and the Data Protection Act in the Lords.

An advisory committee will not be appointed to back up the data protection registrar, Home Office Minister Lord Elton ruled. He rejected a move by former Labour Lord Chancellor Lord Elwyn-Jones to amend the Data Protection Bill in committee to require the committee to be set up.

Elwyn-Jones complained it was "entirely ineffective" for the government to delay decision on the need for such a committee. The registrar would face a multitude of difficult issues, he argued.

Lord Elton feared that a statutory committee would lead to "an element of rigidity". The Opposition amendment would leave the committee without functions, duties or powers — "a motor car without an engine".

The amendment was thrown out by 96 votes to 77.

Proposed codes of practice for data users were also rejected. Lord Elton added that users who hired out spare computer capacity to others would not have to make a separate registration to cover their bureau role.

The Telecommunications Bill began its second journey through the Commons with new Opposition threats to fight it in committee.

Trade and Industry secretary Cecil Parkinson said it would be a major disadvantage for Britain to lag behind modern developments. Failure to seize the opportunities now opening up would deprive customers of the benefits and lower costs of new technology.

The world market for telecommunications products would be worth many billions of pounds each year for as far ahead as could be seen — an enormous market opportunity for British manufacturers. The bill would give the industry a chance to develop freely, he said.

BT would be able to seek finance in the market. Customers were already benefitting by the chance to chose equipment from various suppliers. Over 100 products of this kind were now on the market. Businesses could choose their telexes or branch exchanges.

The general public was only just waking up to the new range of goods. Britain had the most liberal value-added network services in the world; 46 service providers had taken advantage of the licence, which would be a major growth area.

He expected to make an announcement before the summer recess about Mercury's international connections.

For the Opposition, Stan Orme said BT could get its increased

investment by being removed [illegible] dependence on the public [illegible] borrowing requirement and [illegible] tending its external finance [illegible].

Labour MP Jack D[illegible] pressed IT Minister Ken Baker [illegible] the future of Inmos.

He wanted to know if it [illegible] be sold to private enterprise [illegible] was alarmed by reports that [illegible] would be done through an [illegible] can share flotation. He wanted [illegible] second UK factory in the [illegible]. Baker believed it was time for [illegible] vate involvement.

RITA

THIS year *Computer Weekly* will be sponsoring two major awards for companies in the UK computer industry under the Recognition of Information Technology Achievement (Rita) scheme.

In conjunction with the National Computer Centre, *Computer Weekly* will sponsor the award for "systems innovation of the year" and it will independently sponsor the award for the "newcomer of the year".

Details of the criteria that companies should fulfil and an entry form will be published several times, starting next week in *Computer Weekly*.

The deadline for entries will be Monday, October 3 and prizes will be presented to the winners at the Rita Awards Dinner, January 17, 1984 at The Grand Hotel in Birmingham.

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BT makes a commerce Milepost

by Donald Kennett
LAST week a British Telecom region joined the commercial systems houses with the launch by North-east region of Milepost Business Systems.

The Leeds-based venture's first product is a turnkey office automation system based on the Scrapbook information retrieval and electronic mail package originally developed at the National Physical Laboratory in the early 1970s.

North-east region has a reputation within BT for being go-ahead and independent. Its previous initiatives have included arranging leasing facilities for customers through Lombard North Central Bank, and taking on an agency for Timeplex multiplexers independently of BT as a whole.

These steps were taken by the region's former data communications manager Bill Ward, who is now general manager of Milepost. The move fits in with chairman Sir George Jefferson's plans for BT to become an entrepreneurial and market-oriented outfit before privatisation.

The North-east is giving the lead to the rest of BT's 61 areas and 10 regions, which became locally managed profit centres in the reorganisation that took effect in April and which are expected to be among Milepost's first customers.

Midlands Region, for one, is considering setting up its own branch of Milepost, for which staff of the original branch would act as consultants.

The in-trading becomes more complex with the involvement of BT Merlin, the recently established division of BT Enterprises, from which Milepost may buy terminal devices and to which it may supply minicomputer-based office systems.

Plans for the reorganisation of BT pre-dated the government's plans for its privatisation, but together they mean that up to 90 separate companies — counting the additional profit centres in BT Enterprises and BT International — could be let loose on an expanding UK communications market.

Ten years after it was written, Scrapbook is still regarded as an advanced system by those involved with it — in BT, CTL (on whose machines it was developed), Triad Computing (which adapted it to run on DEC machines), NPL and user organisations including Shell, the Ministry of Defence and the European Commission.

Milepost will sell the system in two versions, based on CTL kit, the basic word processing and message handling version called MP2000 and an enhanced version, MP3000, which additionally has form-filling screen handlers, user-configurable transaction handlers and a batch processing capability.

■ British Telecom has turned in a £365 million profit as it prepares to be sold to private investors. Profit was 20% down on the previous year's £458 million, but the dip was put down largely to a change in equipment depreciation charging. Those changes cost BT £145 million — and without them the profit would have been up 11% to £510 million. Turnover rose 12% to £6,380 million.

WARD . . . . *Now general manager of Milepost.*

Lack of graduates poses crisis for computer industry

by John Riley
THE computer industry could face a crisis because of an acute shortage of electronics graduates, warned a university professor last week.

Michael Hampshire, professor of electronic and electrical engineering at Salford University, said the government's university cuts had hit electronics engineering far harder than intended in some universities, which would mean fewer graduates for the industry.

"I am worried that in three years' time there will be a massive shortfall in electronics engineering graduates because too many staff are taking voluntary redundacy, which in turn is leading to fewer students."

Hampshire emphasised that Salford had planned carefully and refused to allow all the staff who wanted redundancy to take it. Even so, the number of staff has been trimmed from 51 to 40 and the annual student intake from 200 to 150 since 1981.

Other universities did not plan so rigorously as Salford, he claims, and he knows of two universities that have a shortfall of 100 students each on 1981 for this October's intake.

John Davies, professor of electrical and electronic engineering at Aston University, and who is himself taking voluntary redundancy this week said: "The University Grants Committee didn't intend engineering to be cut back so much, but more engineers will take early retirement than, say, theologians or philosophers, because they can do things outside the university environment and they also have an older age profile."

Davies will act as a consultant.

Both professors say there is no problem in placing students, and that there seems to be a shortage of electronic engineers already.

A spokesman for British Telecom said there was a problem finiding good electronics graduates, and some departments were having to look very hard for them.

■ Leader Comment — page 13.

TUC wants pension funds diverted

by George Black
HIGH technology should be a key priority sector in the rechannelling of Britain's pension funds, says a new report from the TUC.

The TUC urges the setting up of a national investment bank to harness the £83 billion assets of the pension funds to regenerate British industry. Service industries with good export potential should also get the support of the pensions bank, it says.

The fund's policies have reinforced the decline of UK industry by not providing the right kind of investment capital and thus starving the new growth sectors, according to the report published on July 14. The funds have been increasingly investing overseas instead and avoiding any risky undertakings.

Trustees of the funds, which have increased in volume twentyfold since the 1960s, should take their duties more seriously and not just act as a rubber stamp, says the TUC. They can themselves bring about major changes to get the vital cash for the sunrise industries such as computers.

They should ask investment managers what they are doing and why and find out whether they are helping to create new jobs, the report urges. The TUC plan calls for local enterprise boards to be established for regional economic planning along lines already taken by five large public authorities.

A legal maximum of 10% should be imposed on investments overseas, it says. Trustees should press for an alternative to the highest short-term profit approach and argue the case for a wider and longer-term view of risk.

Rair gets a million

by Nuala Moran
UK MICRO manufacturer Rair is to get a £1 million injection from a top City institution, the Prudential Assurance Company and the Merchant Navy Officers' pension fund.

Commenting on the investment Mark Potts, managing director of Rair, said: "With our existing financial facilities this funding gives us an important financial capability to fully exploit the demand and the market, in particular for the new Rair business computer.

"It will enable our microcomputer products to be developed, marketed and supported in the quantity the market demands."

This is the first time Rair has gone to the City for money. Since the company was founded in 1975 its growth has been funded from existing cash flow.

Potts explained the reason for the move. "We felt after our worldwide marketing agreements last year with ICL, that any financial partners we became involved with, should be drawn from the top level of the major City institutions", he said.

Rair licences ICL to manufacture and market its Black Box range of OEM/technical microcomputer systems on a worldwide basis as the ICL personal computer.

A spokesman for the Prudential explained that it was not policy to canvas unquoted companies. The Prudential was approached by Rair.

Concurrency is in at IBM

by George Black
IBM Personal Computer users will now be able to get the applications-rich Concurrent CP/M-86 operating system after a change of heart by the industry leader.

This is a victory for CP/M author Digital Research because IBM originally turned to Microsoft when Digital declined a fixed price contract. Now IBM has decided that concurrency is such a vital facility it has waived its normal $1.5 million contract maximum.

Salesmen have been telling IBM bosses that single-tasking is on the way out and that larger-memory, networked micros will need concurrency to make them attractive to buyers.

Meanwhile, Microsoft which has been given a leg up by IBM with the adoption of MS-DOS as the industry standard, is asking users to stay with them for the release of MS-DOS 3.0, which, it is claimed, will give the lead into Unix multi-tasking this autumn.

IBM is offering Concurrent CP/M-86 on its XT, the upmarket hard-disc PC which will compete head-on with ACT's Sirius and Apricot machines, DEC and Texas Instruments.

TI marketing manager Dave Monk said it was continuing to back both horses in the software race, of which there was no end yet in sight. Concurrency was "very key" in this race.

"You do need to do at least two or three things at once, such as the print function while you are getting on with something else."

Microsoft says that MS-DOS third version will be "more truly concurrent" than Digital's product, though the specification has not yet been nailed down.

Experts exonerate VDUs

by Howard Karten
VDUs POSE no threat to eye health, a research panel has claimed.

The panel, a group of experts assembled by the US National Research Council (NRC), reviewed 12 previously-reported studies to reach its conclusion.

The NRC group did its work under contract to the US National Institute for Occupational Safety and Health (Niosh), a government agency charged with overseeing safety in the workplace.

Niosh, a controversial agency since its inception, has long been a bane of conservatives here and under the Reagan administration has had a conservative head. NRC is a private organisation with, however, strong government ties.

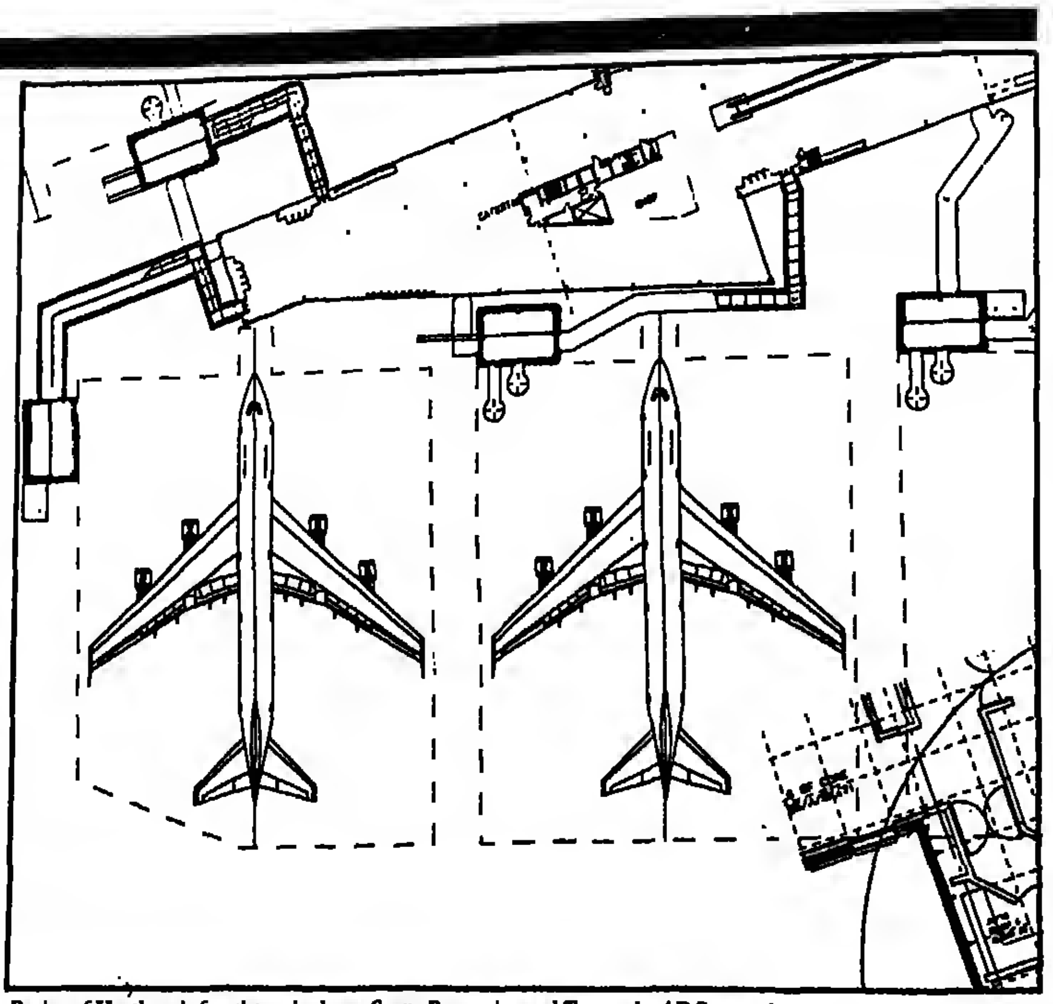
The general conclusion of the 12-man panel was that VDUs pose no inherent risk of cataracts or other permanent tissue damage, according to panel chairman Edward Rinalducci, Professor of psychology at Georgia Institute of Technology. Problems associated with VDUs do arise, he said, because some older VDUs are not ergonomically designed, have been placed in poorly-lit work environments, or are generally uncomfortable.

This might lead to ailments such as backache, eyestrain, and so on.

The 12-person panel, representing disciplines such as ophthalmology, engineering, and psychology, reached its conclusion after reviewing other papers, and did no original research.

Spokesmen for organisations representing labour, such as the AFL-CIO (American Federation of Labour-Congress of Industrial Organisations) and Nine to Five, a group representing female office workers, say the report presents an overly optimistic picture.

CAD cuts airport design time



Design of Heathrow's fourth terminal won Scott, Brownrigg and Turner the ARC award.

by Nuala Moran

THE application of CAD techniques to the design of Heathrow's fourth termioal cut the time taken to do the job by a year, according to Ken Gilham, of Scott, Brownrigg and Turner, the architect on the project.

He was speaking at the annual ARC award for outstanding use of CAD techniques. The award is presented anoually by Applied Research of Cambridge (ARC), a CAD systems house.

Scott, Brownrigg and Turner won the award for the use of CAD techniques oo the design of Terminal 4. This is the largest construction project in hand in the UK at tho moment.

When it is completed in 1985 it will handle 22,000 people and 3,000 cars a day, and have facilities for 40 planes.

The application of CAD techniques to the project began in 1979. During design work, about 1,500 drawings were produced in 13,000 workstation hours. Gilham said: "Using CAD techniques doesn't affect the conception or the design. But it does help enormously with tha speed of response in terms of producing drawings."

But, he added: "The techniques do aid design by giving a mora powerful tool to the designer. They make it easier and faster to make alterations on a drawing."

Scott, Brownrigg and Turner (SBT) was the first UK architectural practice to use CAD. It started off using a bureau service and quickly realised the benefits of CAD. The company bought two General Drafting Systems from ARC in May, 1980.

The General Drafting System systems are based on Prime 150 and Prime 550 computers. SBT has graphics workstations linked to the 550 and three to the 150.

SBT handled all the drawing for Terminal 4. Gilham said that having all the information on discs makes it possible to do monthly updatings of drawings, so it is easier to keep a check on exactly what is happening on site.

It alao reduces the number of mistakes that occur in the construction as there are oo discrepancies between drawings. "There are also great advantages in being able to change the scale of a drawing without having to redraw it," Gilham added.

It is not possible to assess at the moment how much money has been saved by using CAD techniques. "The cost of each stage of the project is being closely monitored and when it is finished we shall go back and try to estimate what the costs would have been without the use of CAD," explained Gilham.

He suggested that the success af CAD techniques on the Terminal 4 project will mean building sites are computerised before long. "Instead of generating all drawings in the architects' offices a disc will be sent to the site and the drawings produced there."

Gilham made a plea that, as the use of techniques spreads, efforts should be made to ensure that standardised drawings are produced.

Ed Hoskins, managing director of ARC, commented that the successful application of CAD to the design of Terminal 4 means that CAD has reached a high level of maturity.

Norsk casts doubts on benchmark test claims

by John Riley

SUPERMINI performance should not be judged on whetstone ratings, argued minicomputer manufacturer Norsk Data at the launch of its new upgraded supermini last week.

Minicomputer manufacturers have increasingly been jumping on the benchmark bandwagon by advertising their machines' performances in whetstones, which measura the rote for processing standard Fortran statements.

"Companies are doing special things to speed up response in certain areas that are not used in general purpose computing, such as for example trigonometric functions, to get batter overall whetstone ratings. Who needs cotangents in normal programming?" asked Norsk Data UK's marketing manager, Richard Norton.

"Still, we have to join the game otherwise we'd get left out."

Norsk Data claims that its new ND-560/CXA (commercial extended) machine, an upgraded version of its ND-560, has a whetstone rating of 4.1mips, making it the world's fastest virtual memory minicomputer. The ND-560 had a 2.8mips rating.

Jim Allen, Norsk's commercial sales manager, said: "Whetstones show a single user Fortran benchmark and don't tell you about the machine's multi-user capability.

"The biggest escape from whetstones is to use microcode written in at the CPU level.

"We find that can give a five-fold improvement in performance on a Fortran program, without the need for an added array processor," said Allen.

The 32-bit ND-560/CXA has a ND-100 16-bit mini front end processor to handle input and output and uses Norsk's common Sintran operating system. It has 128Kbytoa cacha mamory, 7¼Mbytes main memory and supports up to about 60 terminals.

A starting configuration of 2¼Mbytes main memory, two 75Mbyte discs and 16 terminals is £160,000.

The company also announced an upgraded ND-550 called the ND-550/CX which it claims has a performance midway between the ND-560/CXA and the ND-100/CX.

Software also featured in last week's launches. The company launched a new prototype development tool called Uniqua, which it claims is not a program generator, but a multi-user development tool that ean cut program development time by 90%.

"This gets end users involved in design and they feel as if they are participating in database design interactively," said Philip Nadin, who is responsible for software sales.

■ Norsk early this month boosted its holding in West German family firm Dietz Computer Systems, a graphics and CAD/CAM house, from 30% to 80%. It paid DM5 million (about £1¼ million) for the shares and will buy the rest of the company – now known as ND-Dietz – over four years.

Norsk's Odd Groendal becomes managing director in charge of 340 staff in 12 cities.

Cable shopping may wipe out high street business

by Donald Kannatt

ELECTRONIC shopping via cable networks will make high street shops redundant and destroy British industry. It will also undermine local democracy and community services, as local authorities' main income is from the high street.

This was the warning given to the Greater London Council at its public hearing on cable last week by Henry Fabian, secretary of Wandsworth Chamber of Commerce and Trade.

"The economic consequences of this are really horrifying," he said.

Large, aggressive foreign companies would advertise cut-price goods on cable channels, backed by seductive promotions such as the chance to enter a £5,000 prize draw. All the captive cable watcher would have to do would be to push a button.

On the other hand it was essential to have interactive services on cable network, because the UK was at the centre of international commodities trading.

"It will be essential for commercial markets to have access to information, and cable appears to be the best way of getting it," Fabian said. "But the costs are enormous and I don't think it has been properly costed."

The answer was to have cable services properly regulated to protect small business, he said.

John Hopkins of Fantasy Factory Video said that the only unique thing about cable networks as a distribution medium was that they could be interactive. "Using banking, shopping and security services, computer programs and other computer-based information banks may well be more interesting than the things coming down the other way," he said.

Constant audience monitoring was an obvious application of the data collection capabilities of cable networks, he added.

"As an independent producer, I would like to know not only how many people are interested in my material but what they have to say about it.

"If we are interested in any improvement of society, feedback has got to be built in. When you do that, a lot of other things can follow."

He also thought that it was important to have some kind of parallel to the relationship between libraries and bookshops – so that while it should be possible to buy information goods and services, it should at the same time be possible to get them free.

Otherwise, he said, there would be a danger of dividing society into information rich and information poor sectors.

Geoff Andrews, the newly-appointed chief executive of the Videotex Industry Association, echoed the need for the benefits of cable to be available to all, irrespective of their wealth or where they lived. This was the main aim of his association, he said.

Using videotex as the means of putting interactive service, such as banking and shopping, on to cable networks would be a way of reducing the cost of provision. There was a close relationship between videotex and cable, he said, and therefore the videotex industry should be represented on the Cable Authority when it was set up.

He hoped the Cable Authority would see the need for a code of practice similar to his association's to protect subscribers' interests.

Asked to what extent videotex needed cable, Andrews said that the videotex industry did not need cable, but cable needed tha capability of videotex to deliver interactive services.

The chairman of the London meeting, GLC industry and employment committee chairman Michael Ward, objected to the government's planned procedure of evaluating proposals for the 12 pilot cable projects "in secret".

The GLC intended to ensure that the franchise applications were published, that local organisations in each area were consulted and that there was adequate debate on them.

"We are committed to the view that local authorities should be involved," he said, "not to control the operation of the networks, but to ensure there is a proper structure for accountability.

"Only that structure will ensure that cable is used to the benefit of local people and not just to enrich a few multinational corporations. It should devolve power rather than concentrate it."

He hoped that the two hearings sponsored by Sheffield City Council and the GLC would enable everybody to learn more about cable. A report on the evidence given at them would be published in the autumn, he said.

A written paper on GLC policy for cable said that, as it was far easier to develop a new technology than to stop it in its tracks, the GLC would aim to steer this technology in desirable directions so as to mitigate the bad aspects and maximise the social benefits.

It would press for cable to be introduced in an integrated national way and for the whole of London to be cabled uniformly in an identifiable time span.

Applications for cable network and service licences and franchises for the first 12 pilot projects will have to be submitted to the Department of Trade and Industry and the Homa Office by the end of August.

High street shops are threatened by cable networks.

SALES BRI

ADP sells Megabite for £1.9m

ADP NETWORK Se… scooped its biggest ever … sales for a Megasite … system to BL Systems for £1.9 … lion. The Megasite uses … Equipment's multi-… software to link three DEC … central processors, with … have 4Mbytes memory … 1.6Gbytes disc storage.

BL Systems will be … computer services based … Megasite to the whole of the … British Leyland group, … the Land Rover subsidiary … sourcing and vehicle spec…

Newbury deal

SOUTH West Water Au… has ordered £60,000 worth … compatible cluster … from Newbury Data. … newly-announced C03 … controllers will link 42 … Data VDUs and 16 matrix … to the authority's ICL … in Exeter.

Britoil links up

BRITOIL'S exploration … ment has ordered two fibre … links from Versatec … connect two remote … plotters into the newly … company's computers. … cables will be buried in … Telecom's ducts.

Failsafe orders

COMPUTER Technology, UK's main competitor in … in the market for fail… hardware, has won two orders … its 8000 series computers … order came from the Army's … Royal Electrical and Mechanical Engineers, the other from … tish maker of hydraulic …

Music firm aid

MUSICAL instrument … Boosey and Hawkes has … £130,000 order with Sy… for order processing software … system will include a … processing module for the … pany's music publishing … sidiary.

Eclipse sale

DATA General has made … sale of its Eclipse 32-bit … to Express Diaries. The … will be installed at the … headquarters in … Middlesex, and accounts … £190,000 of a total £… investment in Data General … ment over the last few years.

Ferranti three

THREE new orders for … include a multi-million … supply a computer control … telemetry system for … Morecambe Bay gas field … The company also … £200,000 order for four … control systems from … chemical firm and a £1 … order for another gas … Barrow Onshore Gas Terminal.

US carve up

TWO US companies are … up between them a huge … lion order for office … equipment from the American … ternal Revenue Service … contractor is Sigma Data … will supply peripherals … support services, but the … share of the contract … million goes to Zilog for … S8000 systems for word … and financial spreadsheet …

Priam wins order

THE UK subsidiary of Priam … won a $250,000 order from … Telephone Manufacturing … gium to supply 35Mbyte … 70Mbyte Winchester disc … and controllers for use with … 1240 digital telephone … BTM is a subsidiary of ITT … the BTM 1240 is a part of … System 12 range.

BELL ... Most recent recruit, and once of DEC.

Prime loses six to an Encore

by Howard Karten

PRIME last week lost six high-ranking executives to a neighbouring start-up firm headed by ex-Prime chief executive officer Ken Fisher.

The loss of the six was the latest blow to the Natick, Massachusetts minicomputer manufacturer, which has been hurt recently with declining earnings and a credibility problem among Wall Street analysts.

Prime is widely rumoured to be preparing to report a significant decline in second quarter earnings compared to the previous year, on higher comparative earnings. The predicted decline is the second consecutive one for Prime, whose stock has lately declined on Wall Street and which lately has reportedly been the subject of derision and mirth among Wall Street analysts.

The managers leaving Prime include a vice president of central marketing operations, vice-president of Eastern marketing operations, vice-president of support services and other marketing executives.

Ken Fisher, former president and dynamo behind Prime Computer, last week formally announced the start-up of a new computer company. Encore Computer, headquartered in Framingham, Mass., close to Prime, Data General, Stratus, DEC, aod others, will start out corporate life with some high-powered business, sales, and technical talent. Key executives include Fisher, under whose leadership Prime's sales grew wildly, and six executives recruited by Fisher from Prime. They are Henry Burkhardt, a founder of Data General and, most recently, Gordon Bell, former vice-president of engineering and once a force behind DEC's Vax systems.

Encore itself has no plans at this time to develop products on its own. The firm intends to act as a kind of holding company or consultancy for other, smaller firms which may either have products currently, or which may require assistance in marketing, product development and related areas.

The company is currently capitalised at $1 million, all of it coming from the company's founders.

Starting management team also includes seven ex-top managers of Prime.

Encore will also be involved in hi-tech via licensing and joint marketing arrangements.

The concept was 18 months in the making. Fisher compared Encore to Gould Inc, an Illinois-based company which has been completely transformed in the past decade or so from its chiefly battery making and selling operation to an umbrella firm for several high tech ventures.

Fisher was also quoted as saying that there were too many microelectronic products for the available marketing talent to support.

FISHER ... Made it formal.

Matra plans a £90 family micro

by Jack Gee

FRANCE's Matra Group, now 51% owned by the state, plans to manufacture and market a family microcomputer at a price of under 1,000 French francs (£90) before the end of this year, chairman Jean-Luc Lagardere told a shareholders' meeting.

The new micro, developed jointly with Tandy in the framework of the joint venture company Matra Tandy Electronique, will be a direct competitor for the only other French micro in this price range. This is Thomson-Brandt's TO-7, which is priced at over 3,000 francs (£270).

Matra has manufactured over 6,000 of Tandy's TRS 80 Model 3s over the past year and is soon to begin production of its successor, the TRS80/4.

Matra Tandy Electronique is the only sector of Matra's information technology division to have marked up a profit – and only a nominal one – for 1982.

In order to develop software sales Matra has signed an agreement in company with its partner, French publishing house Hachette, to promote sales on a reciprocal basis with Le Nordais, a French language press group based in Quebec.

Matra executives explain the poor performance of the firm's information technology division by the difficulties in switching from an artisan-type level of operation into industrial production. The divisions's losses last year totalled 10.5 million francs (£9 million).

But the telecommunications division, which made a profit of 888 million francs (£78 million) last year, is doing well from sales of videotex and computer terminals. Following a major sale of terminals to Tymshare in the US, Matra has set up a joint venture with French software firm Telesysteme to market interactive videography systems.

Matra also reports good progress in computer aided design, technology for its Datavision division which raised profits by 350% last year – with 70% from exports – to 37 million francs (£3.3 million).

Customers for Matra's Euclid CAD system include Westinghouse, the US Air Force, Volkswagen and Thyssen in West Germany.

Matra has recently set up a subsidiary in Japan to develop CAD sales there.

This September Matra plans to show a new area network linking micros and a colour version of Euclid at Sicob, France's annual information technology fair.

Labour forces answer on Whitehall projects

by our Parliamentary Correspondent

LABOUR MP Alec Woodall last week forced government ministers to report on the progress of Whitehall computerisation and drew a series of written responses.

In the Employment Department, new VDUs could give direct access from local offices to the national computer system run by the DHSS.

Woodall, MP for Hemsworth, received answers from several different sources on the state of the art in official administration.

Alan Clark, undersecretary at the Employment Department, reported that one of its mainframes would be replaced by 1985 to increase storage.

The Manpower Services Commission is developing a micro network to process data on youth training schemes.

Reporting for the Education Department, Secretary of State Sir Keith Joseph said an ICL 2966 would replace an ICL 1906A at Darlington shortly.

An ICL ME29 was being used to investigate a micro-based implementation of the pensions programs.

He predicted Education Department use of word processors and electronic typewriters would grow. Schemes for increasing computerisation were being studied.

The Foreign Office is designing systems to supervise educational interchange with other countries. A major project for an integrated office system with 1,500 terminals is planned.

Treasury Ministar Barney Hayhoe said micros were being introduced into Civil Service Catering Organisation restaurants.

The Agricultural Department is also considering replacing its ICL mainframes.

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Last week in Nice, France, Sperry held its annual seminar. This year's theme of Technology and Future Society brought together a wide range of speakers from industry, academia, and government. Some of the highlights of the week's events are reported below

Expert systems are the key to future success

ALVEY Programme head Brian Oakley has singled out expert systems as the key to the UK's success in developing the next generation of computer technology.

Speaking last week at a seminar in Nice, hosted by the Sperry Corp, Oakley admitted that he would not personally have chosen VLSI (very large scale integration) as an area for heavy UK commitment. But, he added, he saw an important role for Inmos, whose "transputer" would be interesting to watch.

Oakley's view on the importance of expert systems was backed by the ex-chief scientific adviser at the Ministry of Defence, Sir Ronald Mason.

Mason, who has now taken up a research professorship at Sussex University, said that in the long term he believed the most significant part of information technology would be the expert systems.

Mason suggested that technological advances now offered a major chance to go into reverse in terms of weapons and disarmament because of the role expert systems could play in threat evaluation and resource allocation.

Oakley stressed the importance of the UK being first to introducing commercial expert systems. "Like the database approach, the first firm that writes the rule-book will be in a dominant position", he said.

While the government had lost some time in accepting the value of unified approach to developing future technologies, Oakley believes that the UK's software expertise bodes well for success.

At the same time Oakley does not underestimate Japan's potential for software advances, and said in some areas their software can already outperform that built in the West. For example, the Fujitsu operating system outperformed the IBM operating system on the Fujirsu-based ICL Atlas which was recently installed at the Scientific and Engineering Research Council in Rutherford.

In addition, "the Japanese know very well where our excellence is, and are willing to buy our brains".

The Japanese, he said, are still keen to get international collaboration going, and formally asked for an agreement with the UK the week before last. The first priority, however, is to get ourselves organised, although a future deal with Japan is not ruled out.

Oakley added networks to the four critical enabling technologies of VLSI, software engineering, intelligent knowledge-based systems, and the man-machine interface that were listed as priorities in the Alvey report.

The lack of emphasis on communications has been cited by many industry leaders as an important omission in the Alvey report. Oakley admitted that it took him a careful second reading of the report before he found the one paragraph that gave him a "hunting licence for communications".

Other areas, such as storage, could be reconsidered if developments in the market place fell short of expectations.

Progress towards smaller integrated circuit chips will continue, Oakley says, but the laws of a doubling of complexity every year and a reduction by one order of magnitude in the cost of memory every six years would break down soon.

"We are probing up against the limits of technology in integrated circuit plants," Oakley said. "The automated plant could have a heavy pay-off."

It has been the advance in logic units which have made expert systems possible. But there has been limited progress so far in extracting the rules, and Oakley pinpoints it as an area which needs a great deal of attention.

While Oakley says the applications will be virtually limitless, and extend to "mobile" expert systems, he believes the first commercial systems will deal with fairly bounded problems where the danger of error is not catastrophic.

Oakley had a special warning for the UK: the professional trade unions are the most powerful and backward looking, and they are likely to resist the changes forecast by Alvey. He also expressed concern at the growing trend towards nationalism and isolationism, led by the US – a trend which, he said, should be taken much more seriously.

Oakley finds the question of participation by the multinationals in the Alvey Programme as an "extremely difficult problem. I'm trying like hell to prevent anyone in the Ministry from making any pootifical statements on the project", he said. On some projects, he added, the multinationals could be very important.

The first proposals to be funded by Alvey should be accepted by September. The five-year programme will be funded with £200 million from government and £150 million from industry.

MASON . . . "Most significant part of information technology."

A tale of Soviet crimes against the state.

Thanks for the memory card – Soviet style

A BIG "megabuck" fraud in the financial system is probably necessary before the world's banks stop "preparing to react" and take positive action, according to Kevin Kearney, assistant manager at the Bank for International Settlements in Basle.

Kearney criticises what he calls "the mad rush to embrace the new technology in order to gain real or perceived competitive advantages without proper regard for the possible consequences".

The move towards a fully electronic payments environment is raising a number of questions concerning privacy, security, and authentication which must be addressed.

Kearney gave the following apocryphal story to give some flavour of what the future holds: **REPORT TO THE POLITBURO ON THE EFFICIENCY OF ELECTRONIC SYSTEMS FOR PAYMENTS.**

Comrades:

For some time now, the Ministry has been grappling with the growing level of economic crime throughout the Soviet Socialist Republics and our sister-socialist country members of Comecom. While crimes of passion are routinely handled with humane punishments taking into account the particular circumstances, economic crimes are crimes against the state and as such are punishable as capital offences.

The one problem in this regard is that we are killing off some of our more enterprising managers, at a rate that is truly alarming in the light of the declining birth rate and the falling attendance at the Hardvisk School of Business.

As Marx so wisely put it: "There are only two steps to take from being an honest central planner to the firing squad, and those steps are need and opportunity." We at the Ministry cannot control the need. After all we are living in a country peopled with many races, all with a taste for the good life promised to us by Comrade Lenin. As you know, for those "our there" who are not of our inner circle, the only way they can achieve the good life is through economic crime.

You make it Comrades, and they do it. False billing practices, creative accounting techniques that would bring tears of joy to an Italian bookkeeper's cheeks, phantom inventories, phantom customers, phantom factories and yes, even phantom mines complete with cave-ins and loss of phantom lives, with widow's benefits payable by the state of course. Yes, we admit that we cannot control their need for the good life, but we can clock their opportunity to commit these economic crimes against the state with this memory card and a fully centralised electronic payments system.

If Comrade A wants to fly off to the Crimea with his mistress, he cannot get a seat on Aeroflot or even pay for his ticket in cash because the mere possession of cash will be the ultimate economic crime. There will be no cash, aside from a few low-value rouble coins to use the public facilities in Lenin Squares all over Russia.

Think of it comrades, no more cash, no more underground economy, no black market; no double, tripic, quadruple entry bookkeeping. All records of every individual, his authorised purchases, salaries, movements, all controlled by our Ministry's central computer and/or "charged" on to each citizen's memory card.

The beauty of such a system is that we can start offline. The French with their quaint telephone system knew what they were doing when they came up with a memory card that did not have to be connected to a central computer every time one wants to use it. The vices all over the mother land, at customs posts, travel agents, doctors offices, hospitals, banks, factories, restaurants, etc. The list is endless.

KEARNEY . . . "Mad rush."

Financier warns of trendy technology

FRY . . . "The real crunch."

A WORD of caution to companies which have been lulled by computer manufacturers promises for new technology was given by Abbey National general manager John Fry. He caught the mood of many of the speakers at Sperry Corp's seminar in Nice when he called for developments to be market rather than technology driven.

Fry criticised past practices of computer manufacturers who had created "irresistible concepts of products which no self-respecting modern progressive manager in theory could do without", while, not satisfying his real needs.

As an example Fry cited the hype surrounding Management Information Systems in the 1960s billed as an all-embracing solution for corporate management. But while the promise was good, the complexity of the packages offered meant that manufacturers were unable to deliver.

The expectations, Fry said, were fuelled by marketing men. The electronic office functioning in a paperless world could be the latest red herring unless companies understood how they managed resources in their own offices, and understood the concepts of the automated office in terms of the real needs or real people.

"Will the electronic office meet our real needs and service our real problems, or will it simply meet the aspirations of the manufacturer of the equipment? The real crunch comes when deciding what the problem is. It is not the computer industry's problem, nor indeed a competitor's problem, but our, that is our company's, actual problem. Our objectives alone are important and must prevail. Fashion, style, trendiness and sophistication are not necessarily the passwords to success."

Fry said that the convergence of microprocessors, communication in forms of speech and data, and conventional office products reflected a potential for the paperless office. But he warned that reducing the paper flow had nothing to do with electronics – it was an organisational problem which called for a careful look at the precedures and systems used.

Will the user-professional gulf grow?

NOT until the middle of the next decade will expert systems become a reality says Michael Rappolt, director, complex systems division at PA Computers and Telecommunications (Pactel).

Directing his remarks specifically at the financial sector, Rappolt believes there will still be some time before expert systems "are capable of reasonably intelligent (if unimaginative) investment and/or trading advice." By expert systems he means those which use inference programs to apply knowledge to perform a task.

But in spite of an increase in the ability to handle complexity in systems and software as the result of the use of more formal, engineering disciplice-based techniques, Rappolt believes, the technical gulf between the user and the information technology professional will increase.

While both Bernard Atherton, secretary-general of the British Banker Association, and John Fry, general manager of the Abbey National Building Society, were pessimistic about the introduction of home banking, Rappolt sees a gathering momentum towards such services.

As an example of the potential, Rappolt mentioned the new Telemet America "pocket quote" service. The information service uses satellite links to local FM stations to allow subscribers in key US metropolitan areas to get quotes of 20 nominated securities, as well as an alert service on major related events, on a modified pocket calculator.

Charles Read, director of information technology at the Post Office, agreed that the potential was enormous provided the "price is right and the content of services is right". He saw interactive services over the planned UK cable network to include not just home banking and shopping, but home surveillance, support systems for the handicapped, tuition and electronic reference material.

The greatest constraints to development of the new technologies within the financial sector are security and cultural factors, according to Rappolt.

The head of the recently set up specialised computer crime unit at the Fraud Squad of the Metropolitan Police is quoted as saying that in 10 years time every fraud investigated will be a computer fraud.

The conservatism of the financial community is the other major factor inhibiting change. "Those at risk belong to cosy informal clubs that control major sectors of the financial services industry. Are they going to vote themselves out of a job?" Rappolt asked.

NEWS ANALYSIS

MSC to arrange revamp for Tops

The Manpower Services Commission admits its training scheme is not successful. John Riley looks at its recommendations for reform

WITH rare candour, the Manpower Services Commission announced last week that its Training Opportunities Scheme, or Tops, computer training record has not been successful and that it is to be revamped to make it more acceptable to industry.

Following widespread criticisms from the computer industry that the Tops computer courses were not producing people it could use, the MSC set up an industry-based review group last November to find out why.

The group released its hard-hitting and candid report last week and among its recommendations are: Tops computer courses to be reshaped and based on standard modules; computer operator and data preparation training to be scrapped; analyst/programming courses to be replaced by a new business computing course; MSC to work out employer-acceptable qualifications for programming; standards of Tops trainers to be closely monitored; and MSC Tops staff to receive computer training.

By these and other measures the MSC hopes to give its Tops computing courses a clear identity on a nationwide basis.

"We hope that this report will improve employers' respect for Tops courses," said MSC's head of computer training, Hugh Sharp, who is keen to get as much feedback and help from the computer industry as possible.

The aim of the scheme is to provide training and retraining for the unemployed and for those wanting to change their jobs. The Tops computer training programme aims at providing basic broad-based training courses, which vary in duration from 10-20 weeks, to enable trainees to gain a foothold in the industry.

Over 3,000 complete computing courses take place each year. The cost of computing training in 1981/82 was £11.6 million.

However, the scheme has not been achieving its aims. In 1981/82 the proportion of trainees who had gained jobs in computing within three months of completing Tops computing courses was 43%. That is a continuation of a steady decline from 79% in 1979/80 and 57% in 1980/81.

A breakdown of the placement figures according to computing skill and geographical location is presented in the report. The five main skills covered are programming, systems analysis, analyst/programming, computer operating and data preparation. Placements in each category were down (see table).

Although fewer trainee programmers found jobs in 1981/82 than in 1980/81 overall, Wales had a 9% increase and the South-east had a 2% increase.

The Tops trainees with the best chance of getting jobs were those who trained on systems analyst courses in the South-east, where 81% were successful. However, even this was down on the previous year's 94%.

Although placement for analyst/programmers fell from 70% to 57% between 1980/81 and 1981/82, it was still higher than for programmers and systems analysts.

Trainee computer operators and data preparation staff are suffering from fewer job opportunities due to technological changes. The result was that only around a quarter of computer operator trainees found jobs.

The Tops programme is judged on how many trainees got jobs, and the report does not pass the buck on to the recession and the postponement of many large computer projects. Despite these, it says, "the placement rate from Tops computing courses should have been higher than it was".

Put simply, the job givers have not thought much of Tops. The report is open about this: "Employers of computer staff have been highly critical of most aspects of Tops – the calibre of trainees, the content of training, the expertise of trainers, the means used to assess trainees' abilities and the way in which trainees have been 'sold' to them.

Last December, in response to these criticisms, Sharp put out a general call for as many comments on the Tops programme as he could get from the computer industry and others. When those criticisms were analysed by the review body, they were found to contradict each other.

"For every criticism of a particular aspect of the scheme, somebody else would ideotify that aspect as a strong point," says the report. It thinks the problem is that computing is too young to have any perceived training system or standards.

"The MSC is seeking to commission training from a system which is too fragmented in its approach to selection of trainees, content of training, assessment of training achievement and standards applied by training providers to carry conviction with employers."

The content of the Tops training was given top priority for standardising. "From the employers' standpoint, the lack of coherence in course content and length makes it virtually impossible to perceive a Tops trained product as such," states the report.

To give the programme coherence, the review body decided that all mainstream Tops computing courses should "contain a common core of modules which all trainees are required to take".

The report gives details of sample courses and Sharp is welcoming opinions from employers. Tops courses for computer operators and data preparation staff are to be scrapped, while the Tops systems analysis course, which is based on the National Computer Centre's basic course, will remain much the same.

Tops programming courses will in future include a greater emphasis on understanding business systems and of overall systems environment. The report comes down in favour of having a single programming course that would fit trainees for either a mainframe or small computer environment.

The analyst/programming course has been redesigned and will be called "business computing". It will cover designing and developing software packages, implementing them, designing small systems, simple programming and operating.

The MSC will also lay down minimum criteria for trainers and inspect them regularly to make sure they are up to scratch. Training is currently carried out by computer companies, including Control Data, ICL and Syatime, by computer training companies and by further education colleges.

The MSC also wants to make sure that people who have completed training have certificates that are recognised industry-wide. It is setting up negotiations with the NCC to do that.

The MSC is also setting up standardised aptitude tests and selection processes to ensure a high calibre of trainee. Sharp said that the drop-out rate on courses was about 10-12% and, although some left to take up jobs, it looked as if trainers were taking on poor quality people.

"That surprises me," he said. "I would have expected them to pitch their standards higher, as they are only creating a rod for their own backs if trainees drop out as we want to know why."

Sharp intends to move quickly. His first moves will be to send out copies of sample courses for comment; to set up discussions with the NCC and other bodies to develop certificated standards; and to sort out trainee selection.

■ Leader Comment – page 13.

The aim of the Tops schemes is to give trainees a foothold in industry.

Trainees	Tops course completions		Percentage with computing jobs after three months	
	1980/81	1981/82	1980/81	1981/82
Programmers	2,126	2,069	55%	48%
Systems analysts	404	406	67%	53%
Analyst/programmers	147	140	70%	57%
Computer operators	601	361	51%	28%
Data prep staff	164	177	54%	39%
Total	3,442	3,153		

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If you're interested, you could also attend the 3rd Gulf Computer Conference organised by Middle East Computing Magazine on November 22nd and 23rd in the Trade Centre's Theatre. And hear a panel of reputed speakers focus on computer information and experience that is relevant to the Gulf.

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MICRO NEWS

Silicon Valley goes stale

by Aodrew Thomas

US CHIP manufacturers are paying the price for being first. Problems with their ageing installations have led to pollution scares in Silicon Valley.

Fairchild, which set up one of the first manufacturing plants, is on the receiving end of a number of law suits from citizens blaming the firm for polluting water supplies. And a three-month investigatioo by a Californian newspaper has concluded that drinking water in the valley is threatened by dangerous cootamination from chip manufacturers.

Chemicals, includiog arsenic and phosphorus, have found their way through the soil to contaminate drinking water supplies in over 50 locations. Nine wells have alreadv been closed as a result.

Spokesmen for two UK chip builders maintain that they have never had any problems with toxic waste, and blame the age of the US plants for some of the problems.

"A lot of the Valley plant is pretty old," said one, "and some of it dates back to the '50s and '60s. Their purification systems haven't been brought up to date, and they don't put their waste into the sewers, they store it in separation tanks.

"The area is known for its tendency to earth tremors, and it is quite possible that some of these tanks have been fractured, allowing the chemical waste to escape."

And it looks as if there may be a mass exodus from Silicoo Valley in the offing. Apple has announced plans to set up a rival operation 35 kilometres away io Coyote Valley, and IBM, Tandem and Verbatim are also tipped to make the move.

One US congressman, Ed Zschau, is worried that the place where it all started may be abandoned, and is seeking $32 million to build a museum to mark the innovations made there. If successful, his scheme will take three years to plan and five to execute.

Orb becomes a Science Museum piece

by John Riley

THE Orb mieroeomputer, launched only last month, is about to become a museum piece. It will feature in a permanent exhibition at the Science Museum which is opening at the end of August.

The Orb, which is manufactured in Brighton by ABS Computers, has a round VDU and comes in bright colours. Those features will act as ao eyecatcher to attract visitors to the permanent display on environoental science and office ergonomics which is sponsored by the Chartered Institution of Building Services.

"We are delighted that we were asked to provide the Orb," said Bernard O'Leary, ABS Computers commercial manager. "It will be in the Science Museum on permanent enclosed exhibition for a 10 year period, and will be working with things up on the screen." Since the Orb was launched last month, O'Leary claims that over 200 orders have been taken.

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TECHNOLOGY INTELLIGENCE

Chip drought hits systems builders

THE surge in demand for semiconductor products componenis has brought price rises which are welcome to the recession-pressed chip makers. But to the computer builders it has brought with it the prospect of rationing, particularly for memories.

The parts most affected, with lead times stretching out to more than six mooths, sre medium-fast 64 Kbit dynamic RAMs, the staple chip now for many computer builders. Large volume orders placed now are unlikely to be delivered before nexi year from most sources, unless the buyer has a very close relationship with the chip supplier.

And the 64K parts are not alone. The previous geoeration of such memory chips, 16K dynamic RAMs, are moving to higher prices and longer lead times too, at a time when many manufacturers have stopped making them and turned to 64K chips. Static RAMs and Eproms face the same trends, as do the most popular processors, the Z80 aod the 8088/8086.

The chip manufacturers will soon be putting certain parts on allocatioo – rationing customers to particular quantities – and equipment manufacturers which are not locked securely in to supply arrangements with chip makers will find it increasingly difficult and expensive to obtain adequate supplies.

Newcomers to the band of computer builders will inevitably suffer more than established manufacturers with secure long-term arrangements with the chip suppliers. Some observers reckon there is an element of over-reaction, with customers scrabbling to get deliveries, and that things will settle down again.

But equipment manufacturers wanting to cash in on the expected boom in personal computer sales this Christmas will find that many of the chips needed are scarce and expensive on the spot market.

US semicooductor manufacturers reduced chip-making capacity during the recession, with many closing down lines and laying off staff. Now that demand has picked up again the companies are building up capacity, but cautiously.

Meanwhile Japanese manufacturers are boosting their investment in plant and equipment. This financial year the top nine companies there spent over a quarter as much again as they did last year on plant and equipment, and are trying to dominate the next phase of the dynamic RAM market – 265K devices – as thoroughly as they do the present 64K market.

Part of the reason for the shortage of 64K chips is said to be deliberate action by the Japanese suppliers to serve their domestic equipment manufacturers by restricting the volume of chips available for export.

Major Japanese companies, including Hitachi, NEC, Toshiba and Fujitsu, have chip factories in the US to serve the market there, plus others in Europe – like the NEC plant opeoed this month by the Queen.

Now Mitsubishi Electric, which exports around 15% of its 64K Drams to the US, is to set up a factory in North Carolina with a starting capital of $13.5 million. Production is scheduled to start in January 1985.

ALLIN . . . TeleVideo is moving oway from general purpose kit.

TeleVideo, GCS bid for 3270 market

by John Riley

MAJOR VDU manufacturer TeleVideo Systems International and protocol converter supplier GCS Communications have joined forces to tackle the IBM 3270 marketplace.

Following tbe recent announcement of a joint marketing programme, both companies are developing a new range of terminals compatible with 3270 networks. The first of these, the 9178 Model 1 terminal, based on the TeleVideo 915, was lauoched last week.

The 9178 Model 1 terminal has a GCS Communications Series 11 cluster controller which emulates or replaces either a IBM 3271 (BSC) or an IBM 3274 (SNA) controller. The companies claim that it offers features similar to those of an IBM 3178/3278 and that at £745 it is 36% cheaper than the IBM 3178 C2 equivalent.

This is the first time that TeleVideo bas moved away from its policy of building general purpose products to designing terminals for specific mainframes. "Its current programme, with GCS Communiestions providing IBM compatible products, is typical of the approach TeleVideo will adopt, said Peter Aillis, TeleVideo's director of European sales.

TeleVideo now claims to be the world's largest independent manufacturer of video terminals with current production running at over 11,000 units each month. "We are looking for GCS Communications to becomc a highly significant OEM customer," said Aillis. No jointly developed terminals are expected to be annouoced soon.

GCS Communications also announced its new Series 11 protocol converter, which is a communications controller suitable for remote job entry batch type applications within an SNA environment.

Starting price for a two port service is £3,324 with cheaper rates for voluoe sales. It takes up to eight peripheral devices and these can be asyochronous devices such as line printers as well as visual terminals acting as consoles.

PALLADINO . . . Now offering more than just a black box.

Alpha users get leg up to mini world

by Philip Hunter

USERS of Alpha Micro systems now have an upgrade path into the minicomputer world with three new 6800-based machines offering up to four Mbytes main memory. At the same time the company is boosting its support to its UK dealers with a new sales and service centre in Slough, with another to follow io Brussels to serve the European market later this year.

Also announced is a multi-terminal word processing system for the company's whole AM-100 range of super micros.

The company hopes to spurt forward after six years of steady but unspectacular growth, and treble turnover in the next two years to $100 milliioo, Leonard Palladino, sales vice president, thinks that this large target can be partly achieved simply by building more machines and waiting for the ordera to come in.

"We could increase our sales by a third by just increasing our supply to existing buyers," he enthuses.

Palladino hopes that the remaining growth will come by snatching would-be buyers of traditional minis like the Digital Equipment Vax, and by selling more peripherals. "Before we did not offer to the marketplace much more than a CPU," says Palladino. "We used not to see revenues on peripherals. Now we are offering them."

All micros in the AM-1000 range run the same AMOS operating system, which with multi-tasking the company can claim with some justification comes into the minicomputer class. CP/M is also available, as well as the high level languages Basic, Fortran and shortly Cobol.

Chinese show faith in Future

by George Black

FUTURE COMPUTERS, the Surrey firm whicb produces the IBM PC lookalike, has signed a £2 million deal to sell its machioes behind the Bamboo Curtain.

Hundreds of its micros could sooo be on their way to the People's Republic of China, poteotially the world's biggest marketplace. And if the volumes and economics are right, the company will consider local manufacture in the Far East.

The deal is the result of a recent contract with General Robotics of Hartford, Wisconsin, which has already sold several million dollars worth of high technology to the Chinese. General Robotics set up contact for Future Computers with the People's Republic, which now deals directly, said a Future Computers spokesman.

General Robotics has made half a dozen sales to the Chinese government of systems based on DEC LSI-11/23s. The US systems house uses disc drives from British companies Rodime and Newbury Data in its systems and acts as exclusive agents for these firms in China. It was offered a number of contracts involving smaller machioes and chose Future for the purpose.

According to General Robotics' chairman Carl Pick the two firms are now collaborating on development of a DEC-compatible desktop computer similar to the IBM-compatible micro. It is due for launch this autumn.

Future's managing director Brian Jackson describes the £1,800 FX20 as an IBM thinkalike rather than a lookalike. Running under either Digital Research's Concurrent CP/M-86 operating system or Microsoft's MS-DOS, it includes 128K of memory and 1.6 megabytes of floppy disc storage. Strongest selling point of the machine, besides the low price, is likely to be its ability to run the growing mountain of programs for the IBM-PC.

Pick said in Wisconsin that they had modified the performance of some of the hardware sent to China to get it into a non-restricted category for export. With slightly lowered performance kit they were able to escape the nine-month queue for approval by the US authorities.

Hoskyns opens shop

by John Kavanagh

THE Hoskyns services group is aiming to do 10% of its £30 million business in the personal computer market this year following the opening of a demonstration and sales centre in central London. Other centres will open in Birmingham aod Manchester by Christmas.

Hoskyns specialises in building systems around Digital Equipment minicomputers and it is initially offering DEC microcomputers and the Apple Lisa. An IBM Personal Computer dealership will be announced in the next two months.

First-time users are expected to account for 20% of the company's personal computer business but the main markets are expected to be among its existing customers. Hoskyns will offer advice to medium and large customers considering microcomputers for end users or building networks.

"Many of these people are inhibited when they go to a retailer," said marketing director Richard Holway. "They can now come to us for demonstration and advice without commitmeot."

Hoskyns has adapted all its business packages to run oo DEC personal computers.

HOLWAY . . . Aiming at £3 million.

Siemens keeps out of micros

by Nuala Moran

WEST Germany's largest electrical company, Siemens, will not be entering the German personal computer market with complete systems because it lacks marketing operations for a strong pusb in consumer markets.

This statement was made by Kaetheinz Kaske, Siemens' chairman. He also said that he knows of no other West German electronics or computer firm that intends to compete against low priced micros hitting the German market from Japan and the US.

Kaske said that Siemens will restrict itself to supplying components for personal computers, and continue to coocentrate on the market for more sophisticated middle range models.

Siemens is forecast to have a increase in profits for 1983. According to Kaske, Siemens' profit margin for the first eight months of 1983 was 1.9% up, from 1.7% in the previous year.

SOFTWARE FILE

Giro enthuses about Maestro

NATIONAL Girobank is enthusiastic about the programming aid Maestro which has been undergoing trials at its Boole centre.

The Giro people are midway through a six-mooth evaluatioo sessioo to test the promise by distributor Philips Business Systems that it will boost their productivity by at least 10%.

The £90,000 contract has a buy-back clause if the software fails to meet that cooditioo, but as Ursula Leahy, Girobank's technical standards manager, observed, Girobank would be looking for far greater improvemeots if it were to make a long-term investmeot in the product.

"Maestro is a Marks and Spencer's solution," she said. "In other words it's very good, but a bit expensive. What we've got to decide is exactly how much we can use it. It seems to have lots of potential."

Maestro, written by the German company Softlab, was adopted first in this country by BP Oil, whose data processing manager Ron Cowie attested to its value at a seminar in Loodoo in April. He told delegates to a BIS Applied Systems coofereoce, including a Girobaok repreaentative, how Maestro bad helped his firm tackle a programming bottleoeck.

"One of its attractive features," Leahy commeoted, "is how it lets you browae through listings. This means we are getting far fewer listings output from the printer, whicb is really very good. We're moving towards the paperless office, though we've been the last to take our own medicine in this respect."

Girobank begao as a batch operatioo in 1968, converting to online systems in 1975, but still only has 12 terminals among its 230 systems developmeot staff.

One sim of the current trials is to find out how many more terminals would be useful. Leahy guesses as many as 72. The bank looked at alteroative methods such as Unix and Delta before eotbarking on Maestro. Leahy said Girobank had seemed to offer the greatest flexibility, shifting the strain from its four ICL 2900s oo to a Philips P7000 mini.

The bank's DP department ran into problems last year when the 2900s which replaced so ICL System 4 became heavily overloaded. The ceotre was getting overcrowded and on top of this came a dispute over maintenance which involved up to 10-day delays on input for some of the bank's 1.2 million customers.

Now it is undergoing a "major reorganisation of its computer facilities". First step has been the addition of a Tandem mini to assist the 2900s.

The future of the ICL machines is in doubt as the bank goes to open tender on upgrading the. establishmeot.

GIRO . . . Midway through a happy Maestro evaluation.

BIS buys Cross and creates new division

BUSINESS Intelligence Services (BIS), the £23 million turnover British systems house, has bought 80% of re-insurance specialists Cross Computer Group and Cross Computer Management.

The Cross companies have been in the re-insurance field for 14 years and have installed 27 systems based on their Solar software io the Middle East, Europe, Africa and North America.

BIS, most famous for its Midas banking system, also has interests in the re-insurance area with its Folio package running on IBM System 38 machines.

Solar is an onlioe and real time system bandling underwriting and accounting operations. Group founder Peter Cross said the new agreement would enable it to expand its activities which it had been unable to do for lack of capital. BIS receotly reported record annual results, with the pre-tax profit of £2.7 millioo.

The takeover results in the birth of a new division to be known as BIS Solar.

Inmos sets its heart on Occam

INMOS, the state-backed chip maker whose future bas been the subject of recent speculation and controversy, is pushing ahead with plans to sell its programming language Occam.

An evaluation kit for the language has been bought by several hundred software developpment organisations round the world since its release last December.

Now Occam moves from the experimental stage towards the marketplace with a set of tools to be called the Occam Programming System, providing support for real time systems designers.

"We've created a set of engineering tools and sbochorned them into our workstatioo," said a company spokesman in Bristol. The workstation to be offered is a modified Sirius micro, with a keyboard tailored to allow single key commands.

The system is already implemented on Intel 8086 chip-based mieros and oo DEC's Vax supermini running under the VS operating system.

A Motorola 68000 versioo is due in the fourth quarter of this year and Inmos hopes to see it working on its enigmatic Transputer hardware "some time during 1984".

HOARE . . . His brainchild.

Occam wss the brainchild of Professor Tony Hoare, director of research at Oxford University, and Inmos's David May.

It is based on the principle of concurrent rather than sequeotial operations which Inmos says is vital for the fifth generation of computers. The language has beeo exciting a lot of interest in Japan.

The arrival of the toolkit could help to bring Occam from the academic world into the commercial world.

MicroPro broadens its Stars

MICROPRO, the Wordstar author, has widened its business software range with Planstar, a financial planning and reporting system to run alongside its other Star products. It is designed for the IBM-PC under the PC-DOS operating system or any CP/M based micro and will be available through the US firm's British distributors and dealers.

Prime deal

US MINI maker Prime is to sell process planning software written by Logan Associates of Henley-on-Thames. The Locam system will be marketed worldwide by Prime. It is already used by Dowty, United Glass and the US General Electric. CAD/CAM-dedicated Logan is 45% owned by ICFC venture capital bank.

Libra ascends

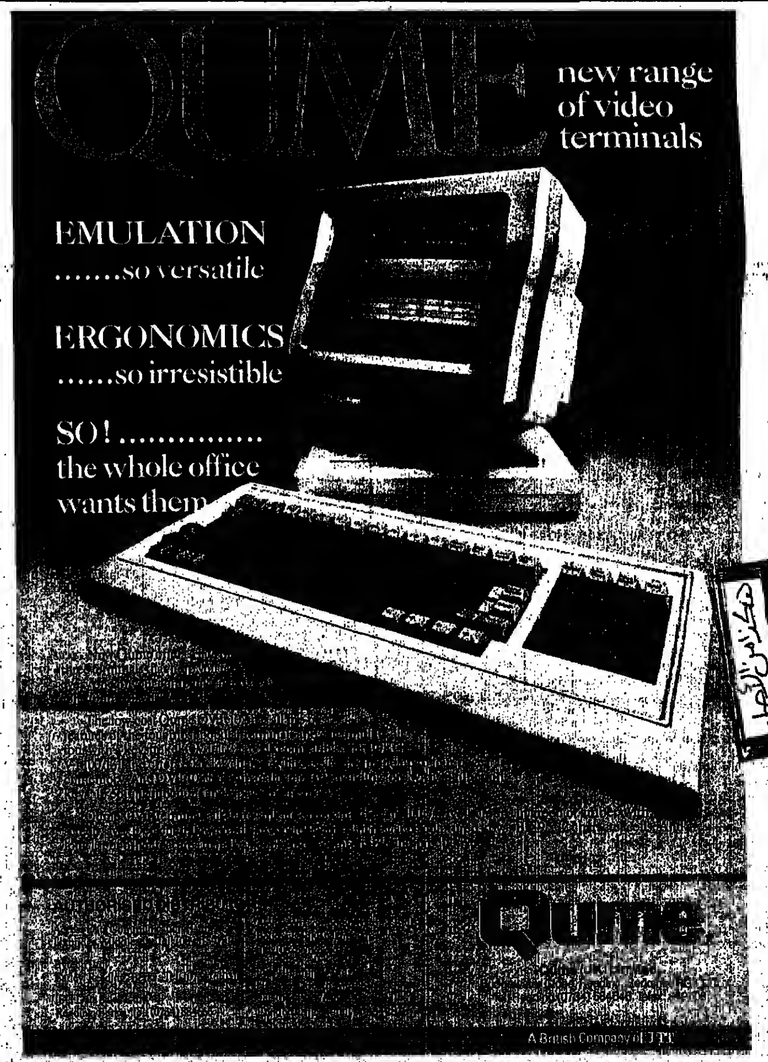
MBS MICROTEX of Eton is marketing an accounting package based on Microsoft's Xenix operating system to run on the American Altos range of 16-bit microcomputers. It is called Libra.

Acorn languages

ACORNSOFT has put three new languages, BCPL, Lisp and Forth, on to its BBC micro. BCPL is a high level alternative to Assembler suitable for producing screen editors, control systems and commercial packages. Lisp is a basis for artificial intelligence writing and Forth a small and fast system language.

Appgen deal

IDM of Doncaster has signed an exclusive deal with Software Express of Texas to distribute its Appgen tool in the UK and Europe. The agreement was reached during a recent visit by Express's Bill Adams to see IDM managing director Neil Ratcliffe. Appgen is a bridge between Pick and Unix operating systems.



COMPANY NEWS

Cable and Wirless shares hit 420p.

C and W shares hit the heights as profits soar

THE government, as it contemplates the sale of shares in British Telecom, must be sincerely hoping that the project is as successful as the sale of overseas telecomms contractor Cable and Wireless.

The latter is the hived off rump of what was once the goverment's own company formed to look after communications in former colonial areas.

When the government sold a 50% stake in the company last year, the best price the brokers could get was 168p.

This was partly because the issue was one of the first of the government's private deals and there was a degree of toe-in-the-water feeling about the sale.

The shares now stand at 420p, valuing the government's residual 50% at slightly under £600 million.

Last week, in a continuation of spectacular profit rises since coming out from under the government's wing, Cable and Wireless beat all the forecasts to turn in a profit of £157 million on turnover of £403 million. The profit was a 100% increase on the previous year's £87 million.

Software fund offers £15m aid

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The basic source of the funding is the Software Products Scheme which is a £15 million pot of money intended for expenditure between now and 1985, and which is administered by the National Computing Centre on behalf of the goveroment. The fund was set up, or rather topped up, in 1982 and has so far made allocations worth over £10 million, ranging from a £16,000 project to 25% of a £3 million development.

David Else, the NCC manager responsible for the scheme, said at a recent sell-out seminar on the scheme that the government is very likely to seriously consider adding a further £15 million, if the present £15 million is used up before the end of 1985.

This would bring to £45 million the total money made available to the scheme by the government and should surely generate some great software. That is the object of the schome, according to David Roberts who, as a member of the Software Products Scheme advisory committee, helped put the plan into operation.

"One third grant funding is the maximum, but a repayable grant of up to 50% is also possible," said Else, who added that the NCC acts as a clearing house. "The Department of Trade and Industry makes the decisions following recommendations from the NCC, but it does retain both managerial control and financial accountability."

The entire process, from making a submission to receiving approval, takes about four months. Some software companies faund this too long, but Else justified it partly on the grounds of the overwhelming response to the scheme. "To bog the scheme down in administrative overheads would discourage the government," he said.

To get your grant, you must first put a proposal together. "The proposal, to be eligible, must come from a UK-based company and should give details of the proposers' plans for developing and marketing the product," said Else. "Bury us in paper," he pleaded, reflecting experience with a number of proposals which may have lost out because of too little documentation. However, he also suggested that a proposal wheeled in on a barrow might not help either.

The NCC, on a completely confidential basis, will assess the proposal. The assessors may visit the proposer's premises and may require a presentation.

The assessors will be looking to ensure that the product proposed is saleable and that the development shows innovation. To justify the grant of public money the project must be one that would not otherwise happen, or which would be delayed if no public money was invested.

PURSLOW . . . "The money always arrived spot on time."

When the project has been agreed – and about 60% of all proposals are approved – the director of the NCC sends the proposal to the Department of Trade and Industry. The NCC recommendation will be based on three different documents prepared by NCC staff. These are a financial assessment, a technical assessment and a marketing assessment.

"The purpose of the financial assessment is twofold," said Else – "to check that the figures in the proposal are acceptable and to judge the proposers' resources and financial capability." He pointed out that even with a grant, the proposer had to find most of the funds himself. "We need to be confident that he will still be in business when the project is completed," said Else.

In its technical assessment the NCC seeks to establish that the development is feaslbie and that the proposer has the necessary skilled staff.

When a grant is finally approved, a contract is signed between the proposer and the NCC.

Some projects have had to be scrapped, and Else ooted that there was a procedure for this.

According to Philip Purslow, who used an SPS grant to help him develop his Manufacturing Control system, which has already won a $1 million award for sales, the efficiency of the payout system is very high. "The money always arrived spot on time," he said.

He also noted that he went into a second draft of his proposal, which came out four times as long as the first and which emphasised marketing, while his first proposal had emphasised the technical [illegible] the development.

"The slowest element [illegible] submission was our own [illegible]tors," according to Purslow, [illegible]lecting a common observ[illegible] that, where public money [illegible] involved, most auditors [illegible] be wildly overcautious.

At the end of the day's [illegible] 140 of the 200 attendees fill[ed in] questionnaires. The [illegible] criticisms appearing in the [illegible]tionnaires were of the long [illegible] round time on proposals [illegible] lack of publicity for the [illegible]. But the majority of com[illegible] were positive and the most [illegible] feature of all is that 130 of [illegible] intend to apply for a total [illegible] million worth of grants.

This potential take-up [illegible] David Else the confidence [illegible] predict that the government [illegible] almost certainly react favo[urably] to a request for a further [illegible] to the funds.

High tech leads investment boom

by Bohdan O. Szuprowicz

ECONOMIC recovery and forecasts of accelerating growth in US gross national product (GNP) focus the attention of the politicians, businessmen, and investors alike on high technology. It is regarded as a major contributing factor to better productivity, competitive posture with regard to the rest of the world, and the maintenance of growth momentum for the remainder of this century.

Rapid growth market niche	Forecasted annual compounded growth during the 1980s
Business and industrial microsoftware application programs	100%-200%
Portable microcomputers from 2 to 25 lbs in weight	190%
Random Access Memory (RAM) superchips of 256K bits capacity	180%
ADA Department of Defence universal programming software	174%
Electrically Erasable Programmable Read-only Memory chips (EEPROM)	114%-132%
Voice recognition equipment and devices in the United States	122%
Videotex and Teletex markets and databanks	100%-120%
Minidiscs for microcomputers of 5¼ in size	100%-120%
Gallium arsenide integrated circuits of all types	72%-116%
Microfloppy disc drives smaller than 5¼ in size	115%
Semicustom VLSI standard cell-type microchips	87%-112%
Low cost computer-aided design and drafting (CADD) systems	72%-110%
Briefcase-size microcomputers only – worldwide	105%
Monoclonal antibodies product sales	105%
Home microcomputers costing less than $1000 each in United States	100%
Managerial equipment for office automation	96%
Database microsoftware installations	45%-95%
Integrated office information systems	87%
Personal computers costing more than $1000 each	70%-81%
Digital private branch exchanges (DPBX) in telecommunications	78%-80%

Indeed numerous high technology market segments have been expanding at average compounded growth rates of 30%, 50% or even over 100% in a number of cases. This is well above not only the national average but of many overall industry sectors that are also dependent on high technology. No wonder that investors at home and abroad are casting covetous glances at American high technology enterprises and are trying to find ways of getting on to the bandwagon.

Such explosive growth has already been responsible for an unprecedented boom in venture capital and public financing that began back in 1980. The collective inventive genius of American entrepreneurs, starved for lack of capital during the 1970s, is now coming on to full bloom and is bringing forth remarkable results.

While many large, well-established high technology companies are publicly crying wolf, entrepreneurs from within their midst are spinning out an unprecedented number of new startups and ventures with esoteric and flowery names like Apollo, Cogito, Daisy, Giga-Tronics, Lotus, LSI Logic, Micropolis, Priam, Seeq, Zymos and Xicor.

These are no fly-by-night outfits working out of garden sheds and garages. All are already multimillion dollar firms originally financed to the tune of $5, $10, or even $20 million by the smartest of the "smart money" boys in the country. They represent the very cutting edge of the rapidly advancing high technology innovation wave that in its intensity and size has no parallel in the past.

Crucial to the developing superboom in high technology are the new very large scale integration (VLSI) semiconductor industry segments many of which are growing at over 100% per year. They produce high capacity and high performance microchips that provide the memories and logic circuits for all electronic products ranging from video games to the most sophisticated anti-submarine warfare equipment.

Gallium arsenide integrated circuits are at the root of very high speed integrated circuits (VHSIC) that are a pet project of the Department of Defence. A new DoD $100 million research program is designed to leapfrog the 1 million-bit memory chips that the Japanese are developing in an attempt to regain the lead with a 4 million-bit memory superchip that will make billion operations per second computers possible. Codenoll Technology is developing a memory 15 to 20 times faster than those made in silicon while Gigabit Logic is the first independent gallium arsenide microchip manufacturer in America. In this race the Soviets are not yet even in sight.

The proliferation of personal computers of all kinds is also responsible for another boom in the minidisc and microdisc markets that are exploding at over 100% annually. Here the name of the game is packing more millions of bits of information on small 5¼in or 3½in magnetic discs. Established pioneers and Wall Street darlings like Seagate and Tandon are being challenged by a veritable horde of well-financed upstarts with higher capacity products. Micropolis, Priam, Quantum, and Rodime are new public issues worth looking at while at least another 20 firms are waiting in the wings to cash in some of their stock in the public markets.

Company News is compiled by Kevin Cahill

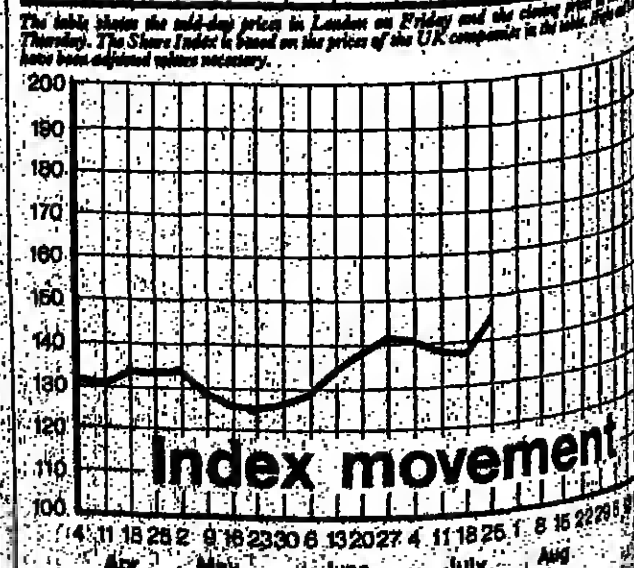
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, lists selected computer companies that reflect the state of the computer industry.

Date 22/7/83 Index 146.17

[illegible]	[illegible]

The table shows the mid-day prices in London on Friday and the closing prices [illegible] Thursday. The Shares Index is based on the prices of the UK companies in the table. [illegible] have been adjusted where necessary.



TOP 100

DP companies find the going hard as profits start to slide

Kevin Cahill analyses Datamation magazine's survey of the top 100 American data processing concerns

LAST year was a tough one in the US, says a survey of the top 100 companies there.

According to the Datamation 100, 40 of the country's top 100 data processing companies showed declines in profit and seven compsnies, including National Semiconductor, Centronics, General Automation, Nashua and Datapoint lost money.

To compensate, there was plenty of shuffling about in the roll of honour, with a total of 12 new companies joining, and the same number dropping out, mostly as a result of mergers or take-overs.

But prominent among the 40 whose profits declined were Burroughs (down 21.1%); Amdahl (74.7%); CDC (9.4%); Sperry (36.8%); DEC (14.4%); and Data General (75.1%).

At the top of the league, in a position that year to year seems to grow ever more invulnerable, was IBM.

For long a sleeping giant, often claiming growth where none existed, IBM last year came out of the doldrums to put on real sales growth of 19.5%, with even better promised for this year.

In fact there was hardly an area af the various breakdowns Datamation makes of its survey in which IBM did not shine.

The big company's mainframe sales grew by 20.8%, the biggest percentage jump among any of the mainframe makers except specialist supercomputer builder Cray Research.

For long a sleeping giant, often claiming growth where none existed, IBM last year came out of the doldrums to put on real sales growth of 19.5%

IBM remains the biggest minicomputer maker in the business with total minicomputer sales of $3,000, almost double the sales of the best known independent minimaker DEC, which dropped mini sales by 18.7% last year to just $1.6Bn.

There is no change in the volume of IBM's mini sales, but in the personal computer business, where IBM had a nil position in 1981, the company has roared in to claim the number two slot behind Apple, with about $500 millioo in first year sales.

That oumber two slot has now beeo abandoned by IBM for the number one slot, according to the most recent reports from the US.

This means that IBM will probably deliver around $1Bn dollars worth of personal computers in 1983, a total likely to outrank Apple by several hundreds of millions of dollars.

Also entering the personal computer field for the first time is DEC, which in its first year in the new market made Datamation's number seven slot in the personal market, jumping from zero sales to $200 million in that first year.

While all the personal computer makers of note made powerful gains, such as Apple's 65% increase in sales, Commodore's 99.4% and Texas Instruments' 16.4%, few of them are likely to be able to withstand the onslaught from the computer industry's number one and two companies.

Staying with DEC and IBM, it is worth noting from the Datamation survey that DEC only held on to its number two position by the very skin of its corporate teeth, showing a growth in sales of only 12%.

Right behind DEC is the now combined might of Burroughs and the incorporated Memorex, which last year produced combined revenues of $4.18 Bn, of which $3.8Bn came from DP sales. (DEC had $4.01Bn in sales, all DP.)

This means that DEC's hold on the number two slot, grabbed with such pride less than two years ago, is in severe jeopardy unless the company generates something like 20% growth this year.

Burroughs' acquisition of the number three position from CDC was hardly a surprise, since its Memorex acquisition was bound to add mightily to sales.

Moving away from the top 10, which saw no newcomers and merely a shuffle around among the leaders, the most dramatic jump of the year came when Commodore leapt from 51st place to 29th, one of the biggest single moves for a long time in the Datamation lists.

With the company now reporting close to $200 million in sales for each of the first two quarters of this year, Commodare looks set to do another spectacular leap this year.

The same is likely to be said for Amdahl Corp, which lost four places to come in number 26 on the basis of revenues of $462 million.

This year analysts are figuring that Amdahl will show around $800 million in sales, which would put the company somewhere in the 14 to 16 position on the table now accumulating.

Further down the list two German companies made noticeable amendment to their status. Nixdorf lost grouod, with US sales falling by $12 to $140 million from $159 million.

This year Nixdorf has acted to stem the slide and is building up its North American operation.

While its fellow German company slid, BASF entered the lists for the first time at the 65th position, with total DP revenues in the US of $150 million, a 50% jump on the previous year's $100 million.

There are very few foreign companies in the Datamation 100 showing clearly how difficult the US market is for non-local companies.

Despite that, Japan's number one personal computer maker NEC has continued to put on impressive volume in the US, with sales jumping 60% to $160 million.

Alongside NEC, Japanese suppliers C Itoh, little known in the UK as a DP supplier, has increased sales to $290 million from last year's $213 million, to make the two Japanese companies the most successful foreign grouping on the list.

It is worth pointing out that the failure to appear under their own name does not mean that key Japanese computer makers Hitachi and Fujitsu have not been active in the US.

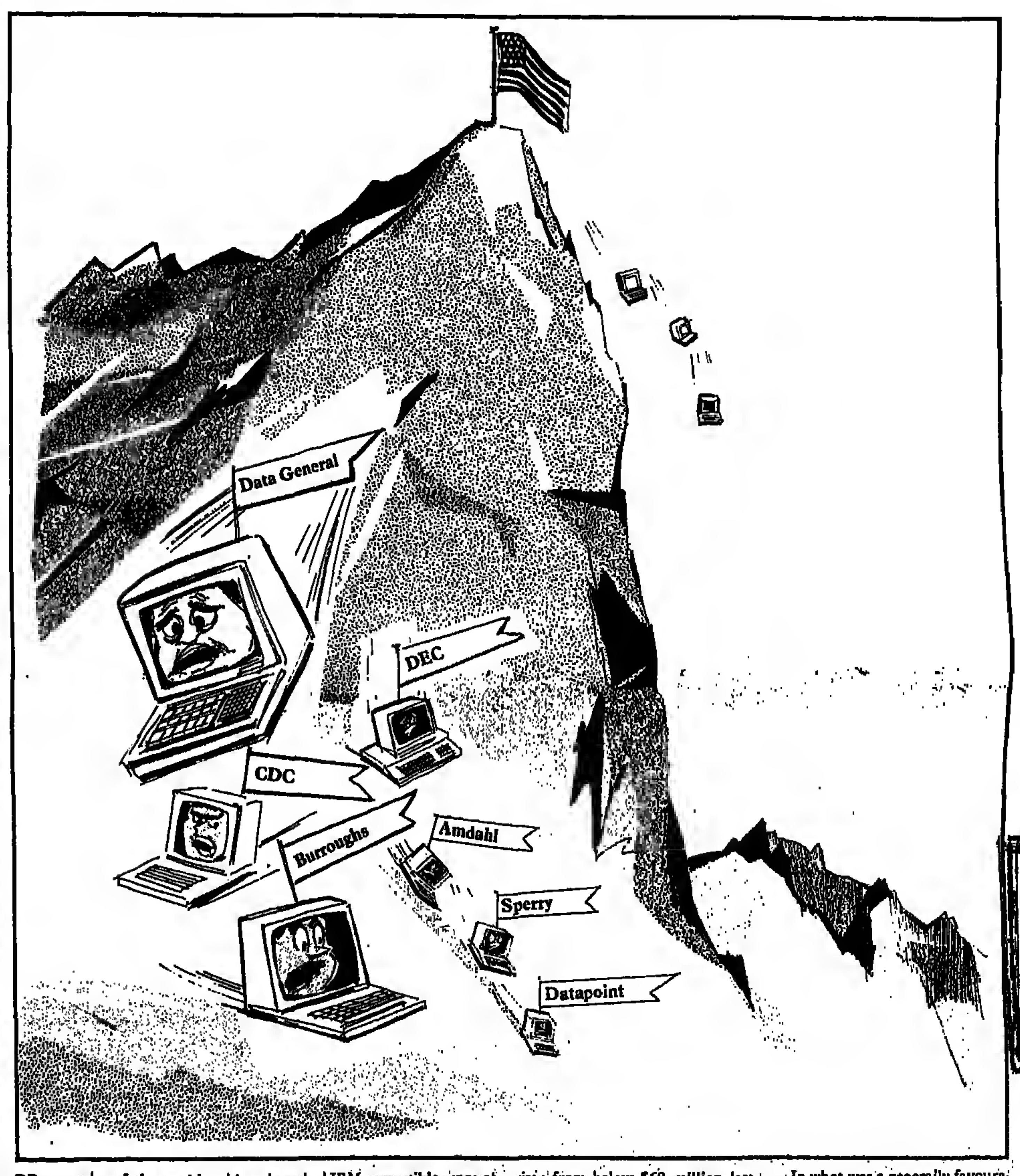
Fujitsu owns 30% of Amdahl Corp and also had a significant share in Fujitsu TRW until it bought out TRW earlier this yeer.

Altogether, experts estimate that Fujitsu's revenues in the US run to around $400 million annually.

Hitachi is principally represented by the National Semiconductor subsidiary National Advanced Systems, which contributed the bulk of the $365 millioo in sales that gave NatSemi the number 30 slot; and a jump of 10% in DP revenues last year.

The UK is one of the most poorly represented of the major DP countries of the world, with Racal Corp making a lone but respectable appearance in the 37th slot, a two position improvement on last year.

Racal's revenues in the US, which are continuing their steady growth this year, came to $300 million, a 25% jump on last year's $240 million.



Decision Data is one of the recent classic US turnrounds, aided at one point by a substantial and hugely profitable cash injection by the British Technology Group

In the 100th position, and entering the top 100 for the first time with a small 5% stake for the UK is Decision Data.

Decision Data is one of the recent classic US turnrounds, aided at one point by a substantial and hugely profitable cash injection by the British Technology Group. Last year, based on its newly launched IBM compatible range of peripherals, the company moved sales along at the rate of 48.3% compared with the previous year.

The only recognisably French company in the list is Schlumberger, which had DP revenue in the US of $76.2 million last year.

Datamation itself complains that it was unable to get Triumph Adler to co-operate in the survey, so it had to omit the results of the TA subsidiary Pertec, which might very well have given the Germans the dominant foreign position in the lists.

Despite words to the contrary, ICL is still a long way from an appearance.

The entry level for inclusion has risen from below $60 million last year to $74 million in 1982.

ICL's last revenues in the US were less than half of that figure and Wilmot's American staff are going to have to run very fast to catch up with the likes of NEC and Nixdorf.

One notable feature of this year's list was the slow growth, or even the loss of growth clocked in by key mainframe manufacturers Sperry and Honeywell which respectively turned in sales of mainframes down 6.1% and 0.1%.

Sperry has fought back with a series of massive American and Canadian military orders, worth over $2.5 Bn in total over the next 10 years, and an ambitious deal with Trilogy Corporation which gives this non IBM compatible supplier a much needed technological shot in the arm.

Honeywell has shown less by way of fight though its shares did well enough last year to give the company eighth place among the top 10 companies in terms of share appreciation.

In what was a generally favourable market for computer company shares all last year, the two top performers, admittedly from a very slim start, were Telex Corp, up 238.4% from $6.50 to $22 and Decision Data, up 230% from $3.25 to $10.75.

The heaviest losers were Datapoint, down from $51.25 to $18.75, a drop of $64.1.

Datapoint was followed by Storage Technology which fell $39.2, among the other share losers, many of which, like Mitel, are undergoing a review by Wall St analysts, is Data General, which closed the year 25% off at $39.75.

While NCR led the big 10 in terms of gains, shooting up a huge $89.8 to $86, IBM put in a share performance as stunning as its return to real growth.

At the time of the survey IBM had risen 69.2% from $56 to $96.25. It should be noted that the giant recently touched the $125 mark and showed every sign of hitting the widely predicted $150.

COMPANY PROFILE

FOSTER . . . *"Always invest more in tomorrow than you take out of today."*

ACT is exploiting its commercial lead

THE tide of success is in for Applied Computer Techniques – with a little help from some of its competitors.

The phenomenal success of the Sirius micro, now selling at 1,200 a month, contributed half of the £2.1 million profits reported for the year ending March 1983.

But for this, the company must in fairness give IBM and Digital Equipment some credit for being so late into the UK market with their personal computers, allowing ACT to build a commanding lead.

And quick to exploit this lead, the company recently launched its next 16-bit micro – this time a smaller machine called the Apricot to attack the market for semi-portable computers such as the Osborne.

ACT's bureau wing has not matched the growth of the rest of the company, but sales increased slightly to £4 million last year against the run of play for the industry.

by Philip Hunter

Here again the company must thank its competitors for being slow to spot new openings for bureau solutions. One such opening was software to apply the government's statutory sick pay scheme, which took effect in April. This alone brought in 50 customers.

The bureau has also held its ground by making increasing use of Sirius micros as terminals, so that customers just use the bureau mainframes for big number crunching applications.

This move has brought in users who want to connect a micro to large databases, but cannot justify buying their own mainframe.

It was as a bureau that ACT began in 1965, founded by the present managing director Roger Foster. Soon to follow was one of the first general purpose software packages, to run payroll.

Foster continued to build ACT as a package bureau well into the 1970s. In 1973 the company announced Compact 8, a simple listing machine to put data preparation into the customer's hands.

In 1975 an online bureau service was introduced, although all printing was still done on ACT's site.

Then in 1977 the advance of minicomputers with falling hardware costs began to eat away at the bureau market. Companies were starting to buy their own minis, and ACT found growth grinding to a halt.

In 1978 ACT made its first move back to fast growth by starting up a division to specialise in turnkey minicomputer systems.

But the master stroke came in 1979 when the company went public to raise money to begin making micros in a big way. ACT was only the second computer company to go public, after ICL, but the move proved a success.

However, the company's first micro, the Ad System 70, turned out to be rather a flop. Undaunted by this, the company persevered and early losses on the micro were quickly wiped out by sales of the Sirius.

The company's second move on the stock market proved just as successful as the first. In May 1983 there was a rights issue to help finance the £10 million factory in Scotland where the Apricot micro is being built.

Usually the share price drops temporarily when a rights issue is made, because existing holders are in effect having their share diluted.

But instead the price rose, perhaps in anticipation of the euphoria from which dealers were to react to the Apricot launch.

ACT has now joined that privileged elite of computer companies that can make announcements to the media when it pleases, knowing that the response will be respectful, if not sycophantic.

The recent Apricot launch at the Wembley conference centre was more like an American presidential campaign meeting with 1,000 dealers and scores of journalists jostling to get their hands on this immaculate little machine.

Since then there was also a full hose of eminent journalists for the launch of a new electronic mail service to run on the Apricot and Sirius, based on British Telecom's Telecom Gold computer.

10 YEARS AGO

FROM COMPUTER WEEKLY OF JULY 26, 1973: Leasco Software and KLM Royal Dutch Airlines were poised to sign a multi-million pound deal for computerising information handling and communications systems for Iran Air . . . Argos Distributors opened a cut-price supermarket chain with "catalogue showrooms" equipped with Plessey light pen data capture systems . . . Fashion house Peter Shires used Garpac programs for the garment industry to analyse and process orders, calculate cloth required, and forecast demand over fashion season, at a cost of £1,500 a year.

PLATFORM

The data register will be too large to work

Alexander Sandison is a (…) librarian. He was involved with (…)ting catalogues into computer.

THE Data Protection Bill, now reintroduced in the Lords, provides for a register of those who use "personal data" in computers or provide a "computer bureau" manipulating such data for other people.

"Personal data" are data manipulated by reference to living individuals who can be identified from the information. The intention is to confine the Bill's provisions to data in computers, but developments in optical character recognition and associated techniques already bring everything in print potentially within its scope.

Concessions in the latest Bill exclude from registration wordprocessing operations performed only for preparing the texts of documents and data held only for calculating remuneration or pensions from employment or accounting for goods or services.

These exemptions will reduce the size of the register, but they are so tightly drawn that they are not as generous as appears. Using a wordprocessor to compile a mailing list of correspondents and their interests goes beyond "preparing document texts"; maintaining a staff leave or duty roster goes beyond the "calculation of remuneration"; a mailing list of potential customers goes beyond keeping records of goods or services "supplied".

The exemptions in the original Bill remain. These include data held by an individual "concerned only with the management of his personal, family or household affairs", but not calculating batting averages for the village cricket club oor lending his machine to the secretary of the residents' association for a mailing list of the social service officers with whom he needs to correspond.

Not is that activity exempt as "held by an unincorporated club and relating only to the members of the club". Data held for purposes of distributing articles to people are exempt, but may consist only of their names and addresses and do not include which articles they want to receive. In any case, both for the clubs and the distributions the data subjects must have given permission for their details to be recorded.

The requirement to register every purpose for which personal data will be used creates comparable problems. Some new useful application of existing software could be unlawful if it has not been foreseen in the register application.

It cannot be in the public interest to make the sensible exploitation of everyday facilities to increase efficiency potentially criminal, nor to create a new range of purely technical offences.

It could well be wise for everyone with a computer to register for the widest range of activities to avoid unwittingly committing an offence.

It is also far from clear whether registration is intended to apply only to the proprietor of a personal database, or to the keyboard operator as the "person (who) controls the contents and use of the data" – the civil servants concerned evade this question.

But what is the register for, anyway? It is intended to help control the unauthorised disclosure of confidential information held in computer files and to provide the subjects of that information with a right to know if they are represented in the file and if so what it says about them, with an associated right to have inaccurate information corrected and to receive compensation if harm has been caused.

This is a laudable intention, although the details of what is confidential have led to heated debates – to the exclusion of the more mundane but really more important problem of how controls could work effectively.

If you as an individual want to exercise those rights, the register is supposed to help you find out where data about you might be held. In the first place, you know already from your personal experience nearly all the relevant files, such as those held by your employers, colleges, banks, tax office, car registration centre, retailers, customers, social security office, societies, professional advisers, etc. The register is no help at all in identifying these "primary files".

You have yourself supplied nearly all the information they contain about you, or it came from public sources or from sources suggested by you (eg references) or already well known to you (eg tax offices are told by your employer).

Registration of these primary sources is no help to you at all. Instead, it makes the register unnecessarily big, difficult to use and expensive to maintain.

A register of "secondary files", in which the information has been obtained secondhand without your knowledge and consent, could perhaps be useful, for these are the files which really need control.

But even for secondary sources, the register could easily be too large to be effective. Those who wish to avoid having to disclose what they hold have only to ensure that their activities are covered by a plethora of entries (but if their files are computerised, then the registrar could have online access to the names indexes and answer preliminary enquiries direct).

A simple simulation exercise to see how you could find out which credit checking agencies hold information about you will demonstrate my point.

A register of "secondary files", in which the information has been obtained secondhand without your knowledge and consent, could perhaps be useful

First, you visit the registrar's office to inspect the register (no charge) or write for certified extracts (with a fee for each entry required). Two sections of Yellow Pages for London provide 10 names, but the important ones will not advertise in that way.

There must be at least 100 for the country as a whole, so you need 100 certificate fees, or you'll have to spend considerable time copying out the details.

Then you start writing to each agency, asking if they have a file about you and what it contains, enclosing proof of identity and an unknown fee (which must not exceed a prescribed maximum).

How far are you likely to get, without very substantial resources of time and cash? Perhaps the first five or 10 on the list – leading to competition between agencies to achieve a low position in the register.

A register is no more useful than controlling unauthorised disclosure of information in computer files. The registrar's staff of 20 will be more than occupied maintaining the register and handling enquiries: time for spontaneous supervision of the sensitive files will be minimal.

In any case, offenders are more likely to be outside than within the register.

As a help in controlling confidentiality of, or access to, files, the register must be considered a dead duck. Yet the Bill suggests implementation costs to national and local authorities approaching £15 million, with similar running costs at first.

For nil benefit, the register seems to contravene all the government's hopes of reducing expenditure, public servants and inflation.

Certainly, unauthorised disclosures from files and harm to individuals from authorised but inaccurate disclosure, need control. Control would be more effective and acceptable to the public if the superstructure of purely technical offences, such as "failure to register" and "unregistered activities" were eliminated.

Let it instead be made plain that publication to any third party of machine-readable defamatory information about an individual is libellous and actionable.

Let unauthorised access to a file, whether machine-readable or manual, be an offence of breaking on a par with safe or house-breaking.

Let misappropriation of information from files be the offence of "data-theft".

Let these offences be clearly defined, along with the borderline between professional privilege, confidentiality and national interest.

Let the rights of individuals to know what is said about them in files be established.

Let there be an Office of File Filing to supervise these matters, investigate complaints and prosecute offenders. Its time could be spent supervising, without the bureaucratic compilation of registers, which will assist neither the public nor the supervisor in any worthwhile way.

Alexander Sandison

DOWNTIME

Chips that can poison you

REVELATIONS of pollution from its chip factories, causing Silicon Valley inhabitants to run screaming for the hills – or drop dead as a result of poisoned water supplies, are rolling in like smoke from an ironfoundry.

The whizz-bang, super-clean, men-in-white-coats aura of semiconductor and chip makers has been sorely tarnished by law suits from anxious residents accusing them of allowing noxious chemicals to escape from their establishments.

But just what are these nasty substances? Our chemical spillage editor asked one chip manufacturer for the gory details.

"Deionised water – you know, the stuff that eats away glass and that bacteria love: boron, arsenic, phosphors and so on.

"We don't use anything that isn't expensive, explosive or toxic, and preferably all three."

Wait until Greenpeace finds out about *this!*

Things that go bump

MY grand outing on Data General's chartered Concorde to New York to meet president Ed de Castro and see the mini maker's new micro snarled up spectacularly on the return journey when things started to go bump in mid-flight.

Computer controls to limit air intake on one engine failed, forcing the pilot to shut it down. Speed had to be cut to subsonic and the plane had to U-turn to New York.

For a minute or so Concorde lost height rapidly, leading vice-president Ray Fortune to remark: "We're not content with an inside page, we want the headlines."

Brits stiffened their upper lips and calmly re-adjusted their watches to New York time, while more demonstrative French explained: "C'est foutu!"

Speculation swept through the plane on the maker of the defaulting systems.

The pilot said over the intercom: "I have been asked to say that the computers that caused the problem were made by DEC."

But he declined to comment later when challenged that Fortune had been holding a gun to his head.

Another crew member in the cabin, asked about the maker, replied acidly: "They're French."

He said he had been flying Concorde for seven years and it was the first time that both control computers had failed simultaneously.

Afterwards, reseated safely on a replacement Concorde, passengers saw the funny side of the whole business.

"We are de Castro's men," joked one. "Fly this plane to Cuba."

Home is where the pints are

SOME things never change. Whilst phoning my favourite ICL mole late the other afternoon, I expressed surprise at his still being at work at half past four.

"Where did you think I'd have gone?" he asked.

"Well, home I suppose," I answered.

"But it doesn't open until five."

Chad

Computer Weekly
Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, July 28, 1983

MSC's report is the Tops

THE Tops computer training report is a refreshing breath of fresh air compared with the usual claustrophobic and self-congratulatory communications so often received from the Manpower Services Commission.

It is rare for any organisation, let alone a publicly funded one, to examine itself as critically and publicly as this, and Hugh Sharp, the MSC's Head of Computer Training, deserves full credit for acting so boldly and swiftly to reform the Tops computer training courses.

With 60% of Tops trainees – many of whom had given up secure jobs for the lure of the computer industry – failing to get placed months after completing their courses, and with employers confused and increasingly hostile to the scheme, something had to be done.

The proposed answer, worked out with as much help from the industry that Sharp could muster, is to produce a definable Tops product, regardless of where or by whom the training is carried out. Potential employers will have a person with proven aptitude and a basic general grounding in relevant areas to an agreed standard.

Will it work? The simple answer is that it will work if trainees get work. That will happen if employers feel that the training is worthwhile, if the Tops organisation remains flexible, and if the enthusiasm spread from the top to the bottom of the organisation.

For the trainees it will still be a gamble, but they and the revised scheme must be given a chance.

What is the alternative? The report identifies two. The first is for the MSC to draw up a list of suitable trainees, and provide the cash to companies wishing to take some on to train them from scratch.

Although that would guarantee trainees a job geared to a real labour need the MSC sees real political problems in this direction. Small companies lacking training facilities would lose out. However, the MSC should not abandon moves in this direction and should continue to look hard at it.

Another alternative, proving very popular, and which deserves to be considerably extended, is to provide grants to employers to stimulate additional computer training.

The employer selects the trainee and pays most of the cost, but receives grants to offset some of the financial burden. That means that the costs of training are shared between the MSC and the employer.

Bureaucracies often come up with good ideas but they fall to work out as their instigators intended. A sad example of that came to light this week, when it was revealed that far more electronics engineering lecturers had taken advantage of voluntary redundancy than the Universities Grants Committee had intended.

That was because electronics experts are more readily employable than, say, theologians.

But the effect has been disastrous on the student intake which will result in a massive shortage in three years time. Let us hope that the new Tops scheme will not fall into that mess.

Well done, Alvey

CONGRATULATIONS are due all round this week on the Alvey Programme for advanced computing research. We have already congratulated the government in this column for putting up £200 million to back the programme, although our misgivings about the 50% limit on project funding have been echoed by the industry.

Now, with the publication of the programme's first progress report last week, congratulations are in order.

The head Brian Oakley, has acted quickly to appoint directors for the various areas to be covered. And even before some of those directors start work full-time they are setting up projects involving collaboration between universities and companies.

GEC, ICL and Logica deserve a mention for freeing senior people so quickly on secondment.

And the industry is to be congratulated for showing new willingness to collaborate, not only with universities but between otherwise rival companies.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Roger Dale of Thirsk, North Yorks, who wins £5.

When he was told of the brochure, Mr Paul Feldman, the director fined in court, said: "These are the manufacturer's lists, and as they are computerised, some of the titles cannot be deleted."

Daily Mail

LETTERS

SSP can help to fund occupational sick pay schemes

THE replies to your correspondent Mr Dilloway (Letters, *Computer Weekly*, June 16) appear to have taken on the calibre of an Exocet. I have every regard for Mr Dilloway's expertise in the area of payroll and suggest that it is this very expertise that has coloured his views on SSP.

The transfer of responsibility from State to the employer for the payment of sickness benefit after 36 years of established practice was undoubtedly not going to be a very straightforward operation.

Certainly, judging by the interest in the application of computers in personnel at the recent IPM exhibition, it has proved to be a catalyst in the development of true personnel database applications.

The discussion so far has been successful in clouding the most important aspect of SSP, namely the analysis of the contribution that SSP can make towards the funding of occupational sick pay schemes.

This contribution is wholly dependent on the current qualifying day agreement between the employer and employee.

To avoid further ill-informed discussion, I would like to draw your attention to the fact that, providing there is agreement between the employer or employer's negotiating body and employee or employee's appointed representative, and that in any week, where a PIW or part of a PIW falls, there is at least one qualifying day, qualifying days can be determined according to any formula.

The limitation of fixed qualifying day patterns, eg Monday to Friday, by the majority of computer software has resulted in SSP benefit below supplementary benefit level.

Where an employer has a generous occupational sick pay scheme, this rigidity is denying him the opportunity to recover considerable enhanced levels of benefit.

M. D. COPLESTON
Managing Director
Information Management Services
Silverton
Exeter EX5 4HZ.

Disappointment is an unjust word for feeling pretty good

I THINK your article of July 14 giving the indication that I had suffered two major disappointments in the month of June was a little unjust.

My company, United Leasing, obtained a full listing on the London Stock Exchange during last month.

It is true that part of the shares were not taken up immediately and this was almost certainly due to a downturn in the Stock Market during that week.

On the other hand, the United Leasing share price has remained constant at its underwritten value of £1.40.

This to my way of thinking represents a strong degree of confidence in our company, which is certainly not disappointing.

Computer leasing is not an easy subject to understand and we have always recognised that the initial appeal of our company will be to a limited market.

As far as the general election is concerned, I stood as the SDP/Liberal Alliance candidate in Ealing/Acton.

In 1979, the Liberals obtained 8% of the vote in this constituency; last month the Alliance obtained 24%.

Ealing/Acton is a Conservative seat where the sitting member is a junior minister at the Department of the Environment.

In the recent boundary changes an additional ward was added into the constituency, which improved the Conservative prospects even further.

Despite this, in the election I took 3% from the Conservatives and 12% from the Labour party.

In short, the month of June saw the company which my brother and I formed receive a market capitalisation of just under £19 million and me myself obtaining one of the best election results in London.

I am not sure how you define "disappointment", but I feel pretty good about it.

PARRY MITCHELL
United Leasing
14 Welbeck Street
London
W1M 7PF.

Equations

IN my letter (*Computer Weekly*, July 21) there is a minor printing error which will be self-evident to anyone who takes the trouble to work it through.

In paragraph four the equation should read 53.3% × 10,000 × 60/52 = 6,150.

In paragraph five the equation should read 53.3% × 7,500 × 60/40 = 6,000.

The % sign is missing from the printed letter in both cases.

STANLEY MACKINTOSH
Harrogate.

NCC is working for standards by 1985

YOUR leader of June 30 argued a need for national standards at all levels for computer occupations. Of course, if computing is to become a properly organised profession, this must be the aim.

The Manpower Services Commission has as an objective the achievement of nationally recognised standards for all occupations – computer occupations included – by 1985.

We at the National Computing Centre are committed to work with them towards this goal.

In the field of systems analysis the National Computing Centre Basic Certificate is already widely recognised.

The NCC is currently working with City and Guilds to restyle the existing programming qualification, to which your leader referred, with the aim of achieving similar recognition for it as well.

However, it must be recognised that employers will continue to look for experience as well as for qualifications.

It is our view at the NCC that every step possible should be taken to combine training and experience in a structured way (eg through sandwich style courses).

The expansion of schemes of this sort is at least as vital to progress as the achievement of national standards.

PATRICK RAYMONT
Manager
Education, Training Strategy,
Privacy & Security Group
The National Computing Centre
Manchester M1 7ED.

The Editor welcomes letters commenting on subjects published in Computer Weekly, *or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.*

Training reminder

YOUR leader of June 30, 1983, in which you comment on the lack of national standards in computer training, omits to mention the recent formation of the Association of Business and Administrative Computing.

This association, which has been created to satisfy a real demand, will have its own examination system and membership structure.

You did in fact cover the association's birth in your excellent columns!

T. K. CROPPER
Secretary General
The Association of Business Executives
London SW12.

It's a Trend in High Wycombe

IN AN article in *Computer Weekly*, July 7, concerning International Communications Technology Holdings, reference was made to a joint venture company called Trend Communication based in Hong Kong.

May I, through this letter, advise your readers that Trend Communications Limited of High Wycombe, Buckinghamshire, is the Data Communications Division of Phicom plc, which is in no way related to International Communications Technology Holdings.

PETER S. COWLEY
Marketing Manager
Trend Communications
High Wycombe
Bucks HP10 9QZ.

WORKPLACE

Hambro Life: the IBM enthusiast

COMPUTERISE early and you can save a lot of time delnugging, fudging and patching. Hambro Life, one of the UK's youngest and most exciting financial institutions, has applied this philosophy since its birth in 1971.

"We always gear the timing of a new product to the time the computer system is ready and working," says deputy systems manager Geoff Fletcher.

But, there is a danger that this approach will impose the limitations of the computer system upon what can be offered to the customer, admits executive director of management services Lawrence Churchill.

Quick to reply to this potential self criticism, Churchill continues: "But you can gain by identifying the issues early on. If something can't fit into the existing system, build changes into it."

Hambro is the UK's largest specialist in unit-linked life assurance, rather than the more conservative option of endowment assurance. Under a unit-linked policy, the investor's cash is sunk in a fund, or several funds, which are used to buy shares in companies.

This makes the investment more dynamic than endowments, with a better chance of beating inflation. But there is also the danger of faring worse than under an endowment policy, which offers a guaranteed rate of return, calculated retrospectively when the policy is surrendered.

The company is capitalised at £400 million, and its computer system has to cope with a flow of one million premiums a day, as well as 1,000 new policy applications.

Unlike some of its competitors, only about 15% of the company's sales are made through insurance brokers. Hambro was therefore able to make a tough stand last year when some insurance companies roeked the established order by offering brokers bigger commissions to peddle their policies. Steadfastly, Hambro refused to give the brokers an extra per cent.

The bulk of Hambro policies are sold by 3,000 self employed salesmen, who work entirely on commission. Only Abbey Life among the competition has such a large sales force.

Hambro's salesmen earned an average £12,000 each last year, a few as much as £100,000. But Churchill is quick to point out that the top salesmen probably have to pay a personal assistant, an office manager and buy a computer out of their enormous salary.

The company is busy now giving its salesmen micros for their own record keeping, although there is no plan to link salesmen up to the central IBM computers. Nor is there going to be a change to online updating of the databases – the risks of data corruption are too great.

In fact the company is slow to bring new technology on board, being content to let others break in new hardware. The company does however regard itself as an innovator in computer applications, and claims it was one of the first to computerise the complex calculations of insurance policy surrender values in the early 1970s.

Hambro provides a classic advertisement for IBM, lashing faith and praise on the computer industry giant. It relies on IBM to maintain compatibility between different hardware, including the Personal Computers, which it is thinking of giving to salesmen instead of the present choice, the Sirius micro.

"IBM has thought through its long term strategy for large companies, especially in the financial community," enthuses Churchill.

Last year Hambro implemented a sophisticated database system with online enquiry. The base can be interrogated under four headings: policies, clients, selling agent, and details of the contract.

Developments of this new base was costly – 250 man years valued at £7 million.

Previously the company bad used a bome-grown tangle of files, known colloquially as Phase 2. "It was becoming inflexible," explains systems manager Ian Seward. "We bad to improve the speed of reaction."

There are over 200 programmers and analysts at Hambro. The company believes that there is a limit to the number of good systems people that can be grown at home. "You probably won't find the best analyst in the UK in the motor insurance claims department," says Fletcher. Certainly not in Hambro's case because there is no motor insurance claims department.

Hambro says it has overcome the shortage of crack systems people by joining the top 10% of salary payers. A good systems person with five years' experience will earn £13,500 plus car. A senior systems analyst will earn £15,000 plus private petrol as well as the car. Who says that perks are dying?

The classical discrimination between programmers and analysts is not to be found at Hambro. Programmers start at £6,800, rising to £10,500 after two and a half years.

STEGGALL . . . Happy with Hambro's £20,000 perk-laden package.

There is scope in the programming department to climb to £20,000 plus car and petrol, the package enjoyed by programming manager Peter Steggall. No wonder that the company boasts a low turnover among staff and a high job satisfaction.

The company is now expanding into other financial markets. It recently brought out Allied Hambro, allowing unit trust policies to be offered. Also acquired was the private London bank, Dunbar, which actor Sean Connery is a major shareholder. This move some of the cord linking the company with its parent Hambro merchant bank.

Hambro has also forged links with the Guardian Royal Exchange, which offers more general insurance policies like motor and house.

The great ACT hot hike

ACT picked one of the hottest days of the year to move a five ton mass of ICL computer equipment from its Birmingham to its Bristol premises. And not a hitch was there to report.

Indeed the hardware was back on the air ahead of schedule.

The only aggravation in the heat was from a few unlucky souls whose cars were trapped as police cordoned off the street in Bristol. This was necessary since the computers were too big to be brought in through the front door of the Bristol building, and so had to be hoisted up through a fourth floor window by crane.

The move was immaculate in its careful coordination of customers, staff, ICL engineers and local police.

It began at eight o'clock in the morning when a team of ICL engineers entered the Birmingham building to disconnect equipment including an ICL 2950, two ¾-ton line printers, disc drives and other peripherals.

Meanwhile the cabling under the false floor was rushed ahead of the main removal van to be laid in wait for the hardware in Bristol.

After the hoisting up into the new computer room, which took three hours, it was back to your trusty ICL engineers to remake the jigsaw of computer pieces as before.

Tony Brien, managing director of ACT's bureau, was full of praise for the ICL team's efficient handling of the operation, and gave them a slap up feast afterwards for their day and night labours.

Both computers – the one moved and the one already resident in Bristol – were running normally again by six o'clock on Sunday evening.

ACT had decided to move the hardware down from the Midlands to offer a more resilient service in Bristol with one computer taking over from another if it fails.

The company has taken on five extra staff at Bristol to cope with the extra work.

ACT . . . Pulling in hardware together.

Digicomp puts Ada on a micro

A US company is aiming to scupper critics of Ada who say that the language is far too big and unwieldy in its full form to be accommodated on micros. Digicomp Research has announced that its Delphi-100 supermicro can run Western Digital's STC-Ada compiler, as well as a range of software development tools.

Just one little snag: neither the compiler, nor the micro is available yet in the UK. But Digicomp sales manager Jeffrey Cox says that his company is negotiating for the use of Western Digital's European sales outlets to market the Delphi micro with the Ada compiler.

"Western Digital needs our hardware," says Cox. And Digicomp certainly needs Western Digital's Ada compiler, which looks certain to be the first to reach the full Ansi standard established February 1983.

The full Ada is certainly a large language, and Digicomp will be using Western Digital's 16-bit Microengine chipset to execute the code produced by the compiler. There will later be the option of upgrading to the Motorola 68000 chip which has 24 bit address lines and will enable larger programs to be run.

For the record book, the first Ada compiler to be validated by Ansi, the American National Standards Institute, was one developed at New York university. But this is really only for show and is not capable of running serious programs because it is painfully slow. It was merely an academic exercise to help produce a formal definition of the language.

Western Digital's compiler produces Pascal p-code which executes much faster.

The compiler has already completed a successful dummy run using the test suites of the US Department of Defence. Formal approval from Ansi should follow.

Two cheers for engineers

SOFTWARE engineers have plenty to cheer about these days. Well, two things anyway – their pay and their status.

You may not know jiuat who they are, but no less august and austere a body than the Institute of Electrical Engineers has offered them membership. And now we hear that their salaries have risen by 25% in the last three months. Experienced job seekers in this market can name their price, according to a survey by a London contract staff agency.

Other estimates of the salary rise are not quite so dramatic, but figures of between 10% and 20% are commonly mooted. At the same time salaries for junior programmers have been almost frozen for the last two years, certainly lagging a little behind inflation.

A result of this is that salary differentials have increased. Junior programmers usually earn between £6,000 and £8,000, while a senior systems analyst can expect double this, as well as a company car.

According to Electronic Appointments, the agency that conducted the survey, skilled software people could do even better if they had more confidence in themselves. Encouraged by the results of the survey, the agency has set up a new permanent recruitment section.

"We find most people underestimate themselves, which is a result of the recession," says the agency's managing director, Madeline Epstein. "They may be good about asking for the right price, but we will negotiate it for them."

Workplace is compiled by Philip Hunter

PUZZLER

6970
1

THESE two multiplication sums show how the 10 digits from 0 to 9 may be arranged in two groups of five, so as to give not only the same product, but also the smallest one possible. This week's problem is to find the two five-digit sums to give the largest possible same product. Hint: Both these arrangements have a two figure multiplier.

See page 55 for the solution.

PEOPLE

IBM board member elected

■ Alex Henderson (above) has been elected to the board of IBM United Kingdom as telecommunications director. He joined IBM in November 1964 as a data processing salesman. His management appointments have included DP branch manager, director of international centres, and DP marketing staff manager. In his current position he is responsible for the marketing of IBM's telecommunication products and services in the UK.

■ Chris Lusby Taylor has been appointed principal support consultant at Digital Research. He was previously technical support specialist at Intel Corporation (UK).

■ Cyril Townsend has been appointed chairman of Centre-file, the computer bureau subsidiary of National Westminster Bank. A former managing director of Centre-file, he succeeds Tom McMillan, who has retired as a director of the bank and as deputy chairman of Lombard North Central, NatWest's instalment credit and leasing subsidiary.

■ Bill Smith has been appointed commercial director of Mellordata and has acquired a shareholding in the company. His appointment to the board is in addition to his present duties as general manager and he will continue to be responsible for the day-to-day running of the company. Smith joined Mellordata in 1981 as financial controller.

■ Trident Computer Services Group, the Faroborough-based contract staff and computer maintenance consultant, has appointed Bob Mitebell (below) as financial director, six months after he joined the company. In December 1982 he was made financial director/designate, after carrying out an audit for Trident's 1981 successful flotation when he worked for an accountancy firm.

■ Alan Jalland-Hassell has joined Management Science Americs as a systems consultant, with responsibility for indirect marketing worldwide. His appointment follows six years with Rank Xerox where he was systems development consultant.

■ Peachtree Software International has appointed Ronald MseKay to the positioo of software support consultant. His previous experience includes the position of senior systems analyst at Rank Xerox (UK) as well as six years with the Scottish Office Computer Service in the post of systems analyst.

■ Delta Data Systems Limited has promoted Ian Davies, whose sales area rovers Wales, West Midlands and North of England, to senior sales executive to head a new sales team. He joined Delta Data Systems in 1981.

■ Sinclair Researcb has appointed Charles Cotton as overseas business manager and Ronald Coben as a non-executive director. Cotton joins Sinclair from British Leyland, where he has worked for 12 years, most recently as overseas operations director for Leyland Trucks. Coben is the managing director of both MMG, the investment banking services group of which he was a founder in 1982, and of Alan Patricof Associates, its venture capital arm.

Senior appointments have been made by Standard Telephones and Cables in two of its management companies. John G. Cottrell (above) is to be the new managing director of STC Telecommunications. He leaves his post of managing director of STC Communications International, but remains a director. He also continues on the boards of Standard Telecommunication Laboratories and IAL. James P. Utterson, deputy chairman and managing director of IAL, is to replace Cottrell as managing director of STC Communications International. He also takes over the chairmanship of IAL.

■ Roland Magnin has been appointed managing director of Rank Xerox. He has succeeded Paul Allaire, who has returned to the US as senior vice-president and chief staff officer of Xerox Corporation. Born in Paris, Magnin is the first managing director of Rank Xerox who is neither British nor American. In October 1981, he was elected to the board of Rank Xerox in London and became director of marketing, planning and operations support. He was appointed deputy managing director in January this year.

■ Gail and Nick Birrell are soon to leave for America with GE Professional Services Company, formerly LTI Consulting Services Corporation. They will be assigned to a project team in one of GE Professioual Service's 10 offices aeross America. Until recently, Gail Birrell has been working with Chivas Brothers in Paisley and Nick Birrell with Polaroid in Dunbarton.

■ Versatec Electronics, the UK subsidiary company of the $100 million Xerox subsidiary, Versatec, bas appointed Doug Cherrie as gcneral sales manager. He will be responsible for sales of the company's products throughout the UK, and through distributors in Europe and certain overseas markets. He comes from the European operation of Versatec, where he was Europesn regional sales manager.

DIARY

AUGUST 5, 12, 19, 26
Practical Wordprocessing is a user training course held at the Barton Grove Micro School, Warrington. Other courses in August cover wordprocessing theory and practice, electronic book-keeping, building and using an integrated system and building and using a database. Details: Training manager, Warrington 36642.

AUGUST 8-11
Practical Computer Auditing for business and systems analysts is organised by Control Data. It will take place at Control Data Institute, London. Cost is £445. Details from Sylvia Lyons, 01-240 3400.

AUGUST 8-12
Introduction to Organisation and Methods is designed for those involved in administration or management who need to review current systems. It takes place at the Henry VIII Hotel, London. Course places at £510 may be booked through the course registrar, Cherry Bigmore, on 01-261 9237.

AUGUST 16
Data Communications Overview at the Control Data Institute, London, gives an introduction to modern communications systems. Organised by Control Data, it costs £145. Details from Sylvia Lyons, 01-240 3400.

AUGUST 30-SEPTEMBER 2
The second International Conference on Database, organised by the British Computer Society and universities of Aberdeen and Cambridge, takes place at Churchill College, Cambridge. Details: Peter Hammersley, Middlesex Polytechnic, London N11 2NQ.

AUGUST 31-SEPTEMBER 1
Improving Programmer Productivity is a practical workshop for trainee programmers with basic language training and initial experience. Run by BIS Applied Systems, it is to be held at the Park Court Hotel, London, and costs £270. Details: Cherry Bigmore, 01-261 9237.

SEPTEMBER 5-8
IBM Cobol Review, a course organised by Altergo Education, takes place in London. Aimed at inexperienced Cobol programmers, it costs £450. Details: Altergo Eduestion, 01-836 9303.

SEPTEMBER 7-9
Implementing and Operating Local Area Networks is a seminar organised by Frost and Sullivan. Taking place at the Mount Royal Hotel, London, it costs £425. Details: Carolyn Budd, 01-486 0334.

SEPTEMBER 12-15
Advanced IBM Cobol is an Altergo course for programmers with at least 12 months' Cobol experience. To be held in London, it costs £450. Details: Altergo Education, 01-836 9303.

SEPTEMBER 12-15
PL/I Consolidation is an Altergo course for inexperienced PL/I programmers. It takes place in London and costs £450. Information: Altergo Education, 01-836 9303.

CONFERENCES

THE 1984 Society for Information Display International Symposium will be held at the San Francisco Hilton, San Francisco, from June 5-7, 1984. It is run by Palisades Institute for Research Services. Authors are invited to submit a 35-50 word abstract and a three to seven page technical summary by December 5, 1983, to Hildegarde Hammond, Palisades Institute for Research Services, 201 Varick Street, New York, NY 10014. Tel: (212) 620-3388.

TELESOFTWARE is an international conference at the Heathrow Penta Hotel, London, organised by the Institution of Electronic and Radio Engineers. It will take place on September 27 and 28, 1984. Call for papers has been issued and authors are invited to submit synopses of proposed contributions under the headings Broadcast Systems, Interactive Systems and Wideband Cable. Papers will be considered on topics including systems descriptions, transmission techniques, provision of services, equipment, applications and operational experience. Synopses of about 200 words should reach the committee by November 1, 1983. Final papers are required by April 1, 1984. Further information from the Conference Secretariat, Institution of Electronic and Radio Engineers, 99 Gower Street, London WC1E 6AZ. Tel: 01-388 3071.

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MADE IN BRITAIN

David Broad, chairman of Comart and the British Micro Manufacturers Group, writes about . . .

What the UK micro makers want from Ken and Maggie

THE BMMG (British Microcomputer Manufacturers Group) was formed over two and a half years ago by concerned managing directors of British microcomputer manufacturing companies.

The meeting was prompted by the first ever appointment of a Minister for Industry and Information Technology, Kenneth Baker, and a meeting had been arranged to ensure the DoI was made aware of key policies that could affect the future of this very important sector of British industry.

Further to this meeting, arrangements were also made for representative discussions with the CCTA (Central Computer and Telecommunications Agency), the NCC (National Computing Centre) and other bodies having effect on the national strategy for microcomputers.

From the outset the participating manufacturers were determined that the BMMG should not either become merely a talking shop or a bureaucratic trade association far removed from the day to day topics of strategic interest. Representation was very much by the chief executives of the micro manufacturers concerned.

Following the announcement of the original preferred microcomputer list by the CCTA, many more manufacturers were in contact with the group expressing dissatisfaction with the very small number of UK suppliers included on that list.

The initial manufacturers participating in the BMMG particularly concentrated on business microcomputers in the price ranges £2,000 to £5,000 but it was soon agreed that the brief should be widened to include all UK manufacturers and also to include all applications.

It was not long, therefore, before the number of companies in the group had approached 20 and decisions taken to commission professional assistance for the secretarial services of the group.

Today the enlarged council of the BMMG has members specifically responsible for initiatives in the field of exports, standardisation, commercial policies and tariff duties, and also the important responsibility of reviewing the suitability of new members to join the group.

Present policies of the group are targetted at achieving progress in the following specific areas:

Unfair duty rates: For many years, executives in the computer and electronics industries have drawn attention to the iniquitous system whereby the duty rates vary on components and assembled microcomputers, which has the direct effect of discouraging manufacture of microcomputers in the United Kingdom.

Representations have been made in the past by individual companies but the BMMG has adopted, as a top priority, the task of ensuring that some changes are made.

The difficulty has been that duty rates span several ministerial and departmental areas, from the standpoint of their impact on industry policy, finance and trade. It was therefore important to set up an initiative that was involved in extensive liaison with government on the one hand and ensuring that the widest possible measure of industry support was achieved on the other.

BMMG vice chairman Nigel Smith has been quoted in many industry journals as demanding urgent action in this field and it was therefore possible for the BMMG to arrange the largest ever number of manufacturers to visit the Department of Industry in June to demand early representations to the European Economic Community to enforce a change.

Unfortunately arrangements for the General Election have intervened but with the government now returned, early meetings are planned with Kenneth Baker in his new role within the combined Departments of Industry and Trade.

How government can be our best customer: The BMMG has been in close contact from its outset with government departments and the procurement agency, CCTA, that is responsible for purchasing microcomputers in the United Kingdom.

In its first year a very successful seminar was organised in conjunction with the NCC and the Department of Industry that, for the first time, brought before many senior members of the Civil Service, papers that identified exactly how UK microcomputers could be used with good effect to improve efficiency, while providing considerable potential to the UK micro manufacturers themselves.

The BMMG is pleased that in the latest list of announced microcomputers for preferred government purchase, seven of the 12 manufacturers are now, not only manufacturing micros in the UK, but are owned and managed by UK executives.

But we have been pleased to agree with the CCTA a basis upon which systems not on the list may still be proposed, in circumstances where significant cost savings can be achieved or the specifications and applications of the system are particularly suited.

The government marketplace for micros has been drastically under-exploited in the UK over the last seven years of the microcomputer revolution.

For a sector which represents over 50% of the gross national product and spending power, the 3% or so of manufacturers' business that is represented by government is really appallingly low.

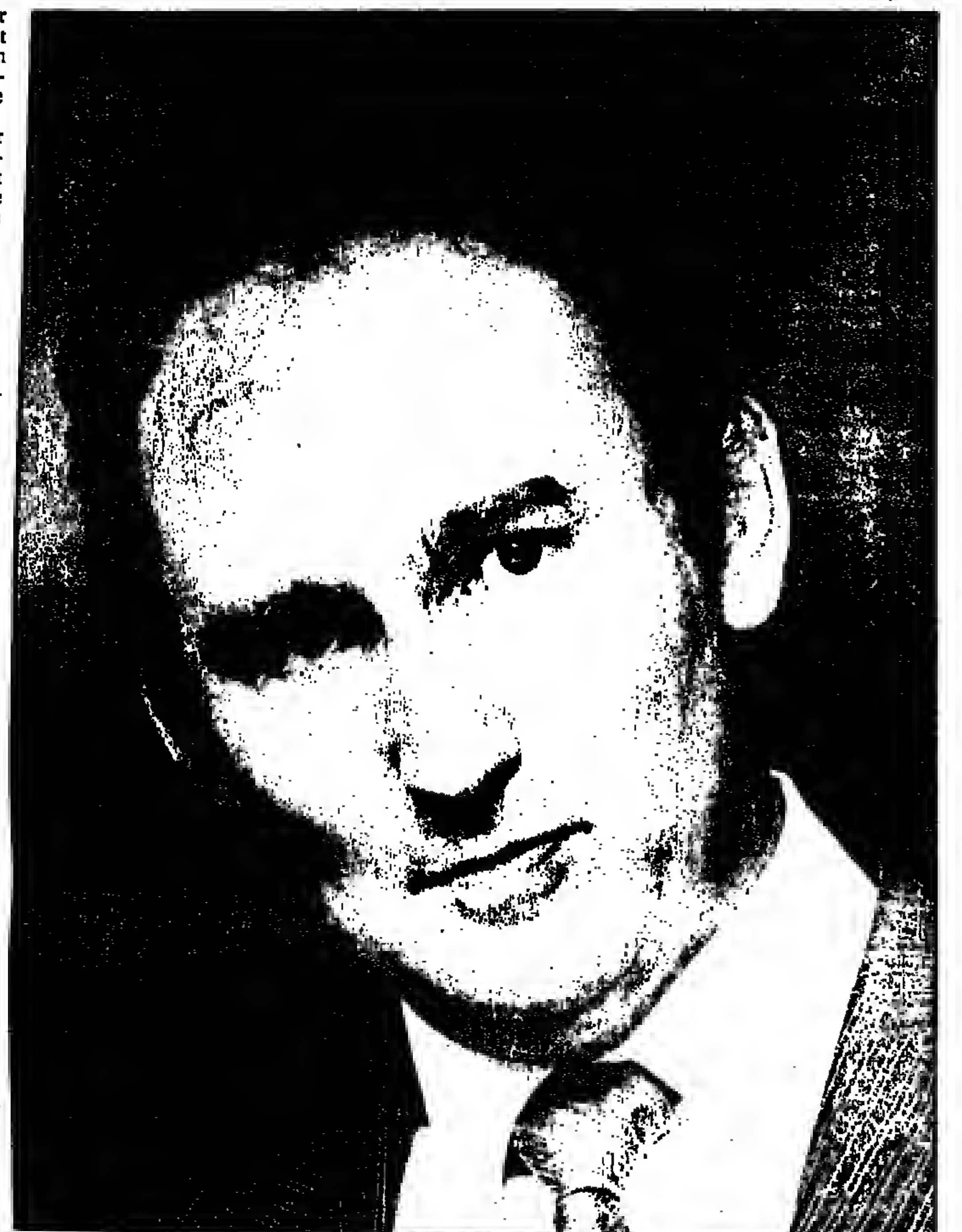
There is an urgent need for manufacturers and government, together, to work in constant campaigns of awareness and constructive proposal to ensure that the implementation of new technology throughout the government sector is vastly improved.

The BMMG is pleased that many large microcomputer schemes, including the DHSS, could now make a favourable impact in future. It is particularly important that UK microcomputers are selected for these applications.

Government is rightly concerned from the point of view of security, and also future service and support of its administrative systems, that manufacturers are able to provide this continued service.

There is no better way of ensuring accountability for manufacturers than for their operations to be based in the UK, where co-operation can be close, where lines of communication are short, and where there is a joint resolve to both develop and optimise systems to be even more suited for public sector applications.

Working with others: The BMMG has always co-operated actively with other trade associations and representative bodies, to ensure that matters of common interest are pursued as far as possible. The BMMG has held joint events with the Computing Services Association (CSA), the trade association more particularly concerned with the supply of software and services to the computer industry, and also with the CBI (Confederation of British Industry), where CBI Director General, Terry Beckett, has supported the BMMG's Five Point Plan.



> **"There is an urgent need for manufacturers and government, together, to work in constant campaigns of awareness and constructive proposal to ensure that the implementation of new technology throughout the government sector is vastly improved."**

Reports by both the Electronics and Information Technology EDCs of NEDO, emphasise the importance of the trade association in providing consistent input to government to improve the quality of decision-making for the future.

Membership and representation: The BMMG has seriously considered the structure and representation of the group, from the standpoint of ensuring that it truly represents British microcomputer manufacturers.

Of course, in many instances it can be difficult to establish to what extent a microcomputer is manufactured and designed in the United Kingdom, but the policy that has been used throughout is one of admitting companies who not only manufacture computers in the UK but are also owned and controlled in the UK.

The BMMG recognises that in order to remain representative and to support a degree of membership necessary to finance high levels of group activity, we should not be restrictive on membership.

Early policies, for instance, insisted that all member companies had been trading for three years and were in a position to disclose accounts accordingly. Now many more recent and smaller companies have entered the market, many financed by large amounts of startup capital, these policies have been rethought and the BMMG is increasing its membership and encouraging other organisations to join.

A roof over our heads: One of the problems that has long faced high technology companies is the gross inadequacy of suitable accommodation.

The classical industrial building is designed for organisations with large requirements for manufacturing space, with very little technical accommodation. The high technology companies need much smaller amounts of productive space but require accommodation for large numbers of technicians, support and service personnel.

Although the Herring Son and Daw report identified this problem and applied pressure to the NBDC, the Chancellor and others concerned, the recent Finance Act only nibbled at the edges and increased to a small extent the amount of office accommodation that was allowable in a new building, from the standpoint of tax relief via industrial building allowances.

A complete rethink is now needed on the property requirements of the electronics industry and the BMMG will be backing all interested parties and trying to organise a major change in this field.

The IT industry and organisational role: BMMG believes that government has a very important part to plan in co-ordinating developments in the microcomputer industry.

We have also been anxious to point out to government that it is in a unique position as a customer, a supplier and by providing the regulatory control, to provide the key influence for bringing organisations together to compete with the US and Japan.

Wherever government has provided the lead and proposed a mechanism by which these consultations and concensus can take place we have always been anxious to support them.

My own company is the [illegible] microcomputer organisation [illegible] the suppliers sectoral committee, Focus. Focus was an initiative set up under Department of Industry chairmanship and an NCC secretariat, to coordinate our [illegible] input to the wide range of standards-making mechanisms to ensure that we did not lose sight of the strategic advantages that [illegible] be gained by the correct [illegible] and endorsement of standards [illegible] able for British manufacturers.

We have also supported, [illegible] the outset, the work of [illegible], a body set up during Information Technology year to promote export of UK information technology to nations overseas.

BMMG also supports [the] recommendations of the [illegible] Committee, having provided evidence and input to it, and [illegible] to see the work of this [illegible] leading to real resolves in co[illegible] tion between manufacturers [and] academics.

We are particularly anxious [to] exploit the proposals of Alvey [illegible] also believe that small to [medium] sized companies should [be] involved in funded development as well as large ones. A [illegible] take of many initiatives, and [a] feature of the Esprit [illegible] programme is that small [and] medium-sized organisations, which can provide the profits and jobs for the future, have [been] excluded.

Now that a network [of] microsystems centres has [been] established, and that more [illegible] has been approved for publicising them, it is intended that a [illegible] British microcomputers [illegible] used to ensure that visitors [to] centres will be familiar with [the] capability of the UK machines.

A Software Directory has [been] sponsored and will become [a] "[Yel]low Pages" for the future, [illegible] ready reference for clients [illegible] UK software for all types of [busi]ness applications.

In addition to the above initiatives and many others BMMG [is] continually providing views [and] input to all organisations [in the] UK responsible for formulating policies for the IT industry.

Why should manufacturers [join] the BMMG? Our industry consists of many medium-sized companies determined to become [the] larger companies of the future, [se]curing the economic [illegible] more jobs and more opportunities.

Unfortunately in the day [to day] involvement of high growth [and] technology change, each company by itself, has limited ability [to] make a lasting input [into] relationships with government [and] the regulatory agencies.

The BMMG, from its [early] days, has provided the means for representing the [views] of manufacturers and [illegible] their voice does not go [illegible]. Secondly, because of the [illegible] representation to the [illegible] being at a very senior level, [the] opportunity it provides to [busi]nessmen concerned with [the in]dustry, to meet and discuss [prob]lems and opportunities of [mutual] interest, cannot be underestimated.

There have been many [illegible] of inter company co-operation [and] also of agreement on the [illegible] ing of certain standards.

All these matters make [illegible] that the BMMG [illegible] maintains, both its [illegible] role and also its ability to [illegible] the resources to follow [illegible]

Government and other [illegible] the industry have a keen [illegible] needs of the British man[illegible]

SOFTWARE COSTS

Paul Walton investigates the seemingly high prices of software packages imported from the US by distributors

Why the Atlantic crossing is such a pricey package deal

ARE consumers of US-written packaged software being ripped off? How widespread is the practice of mysteriously exchanging the dollar sign on the original US price for a pound sign on the UK price, making imported purchases a third to a half more expensive over here?

The answer is that the "missing" 30%-50% price hike is swallowed up because the software is actually crossing the Atlantic. It does not necessarily go straight into the pocket of some unscrupulous dealer.

Philip Virgo, manager of the National Computing Centre's (NCC) Microsystems Centre in London runs basic courses in how to go about choosing the right software package.

He sees most products being offered on microcomputers, and he notes the Atlantic inflation in most. "It is odd to find a package where that has not happened," he says.

To be fair to software dealers, most gave good reasons for the price differences. And major microcomputer package publishing house Lifeboat actually bucks the trend, by faithfully converting dollar prices more or less directly into pounds.

The higher cost of US-written software is something which affects the microcomputer package market, almost exclusively, with minicomputer or mainframe software either being bundled in with the complete system, or being sold on very different "charge by use" licence fees.

And it is not just software, but US hardware which also gains a few pounds when it comes to the UK.

There are three kinds of pricing approach for the consumer-oriented microcomputer package, and all three stem from the fact that the end-user buys software as if it actually *were* the record which floppy discs holding the product resemble.

But with applications packages costing from a few hundred pounds, to several thousands, the piper is getting considerably more for this tune than hard-pressed record companies!

VIRGO . . . Notes inflation in most imported packages.

A growing number of this country's software distributors begin by flying out to America, to find a package to sell. Marketing Micro Software (MMS) of Ipswich went straight to the experts for its US package.

Rex Ratoff, the company's finance director said it got the Tool Kit (TK) Solver software from Software Arts, the same group of people who wrote the big-seller VisiCalc. MMS negotiated what Ratoff calls "a very good price" with Software Arts, and is the first European distributor for the package.

Ratoff agrees that charging the same sterling as dollar price "does seem to be the accepted thing in the trade". But his explanation — a generalised view, and not limited to MMS itself — is that American software authors "don't understand the UK, or European distribution syndrome at all".

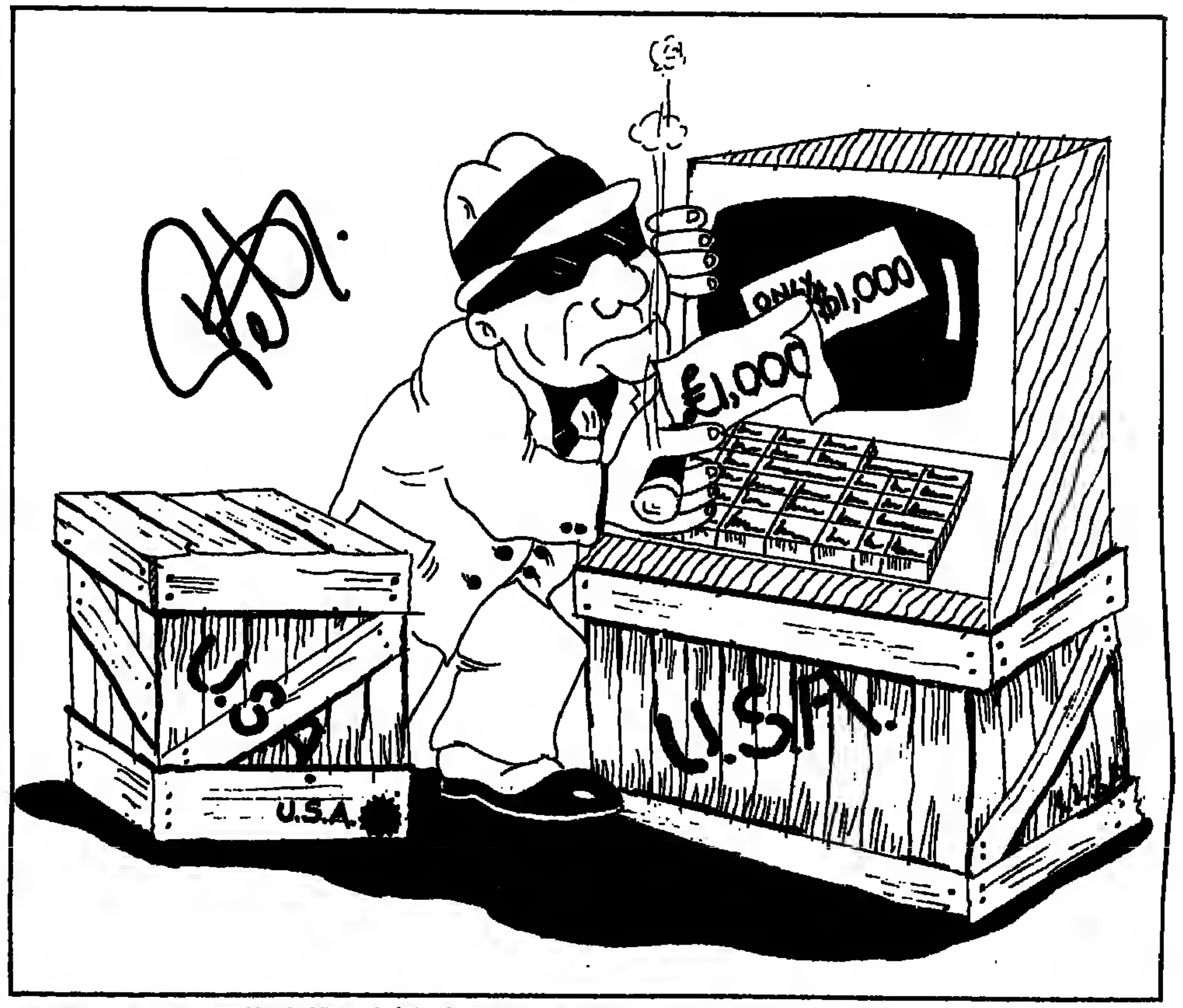
"Most US software authors are not very export oriented, in fact I would say that they are frightened to death of exporting," he says. "We have this image of the American entrepreneur who grabs the world by the scruff of the neck, but it's not true.

"In fact they are computer boffins, most of whom think more easily in programming languages. They write some package and find that sales come very easily — they have a massive market right in front of them.

"Sales of a microcomputer software package might literally go on forever for a product in America. If they do think of Europe at all, it is as if it were another state, maybe Texas. Software authors producing the world's best packages are in fact naive about selling it abroad. We have to go to them, a hint of trouble and they don't want to know."

With the first approach to pricing the floppy disc and its associated documentation is wholesaled just like an LP or single. The UK distributor thinks he or she has spotted a potential hit, so a dealership with the US software author is arranged.

Ratoff has applied his training as an accountant to the pricing chain, which goes as follows. The American supplier is used to wholesaling thousands of floppy disc copies of the software through state-based distributors, giving them a 50% discount.



Products from the US can show big price hikes as the $ sign changes to a £. But this doesn't mean every dealer is "on the make".

The state wholesaler takes his 10%-20% cut, and passes on the product to retailers — most probably a chain of retail shops — which take the other 30%-40% of discount on offer.

When faced with a UK distributor, the American supplier simply offers him the same wholesale deal. But before his package can be sold, 10%-15% freighting and 6½% import duty is removed from the margin. To give UK shops the same 30% mark-up, our UK distributor is left with nothing.

"By the time we have put that microcomputer package into the shops — with a margin for taking the risk of stocking it, and VAT — we are left with nothing", says Ratoff.

So, what he calls the "logical, as well as simple solution" is for software distributors to treat dollar prices as if they were pounds.

With the exchange rate fluctuating between $1.8 and $1.5 to the pound, this gives distributors like MMS room to manoeuvre, and an incentive to winkle out new and often unknown packages from reluctant American software authors.

As a footnote, MMS claims to sell TK Solver at a recommended retail price of £286, which is comparable with the US price of $399. "So we are not in that syndrome for TK Solver, but we have had to to it in the past where we didn't have quite such a good deal as the one we've got with Software Arts," Ratoff adds.

Because more and more people are becoming microcomputer package distributors for the first time, many are being forced to pass on costs associated with starting up business in the first place. Virgo sees this kind of price inflation, where "the new firm wants to generate a good cashflow very early on, to pay for advertising, good support staff, or even premises".

> **"If one of my customers wants to buy software, then he should be able to buy it at the same street price here as in New York. It seems like a fair thing to do."**

With the second pricing approach, the software distributors pass on some of their fixed costs to first customers in what Virgo describes as "a very dodgy commercial equation".

But distributors often describe this type of margin, again directly equating dollar and sterling prices, as a buffer against other variables such as currency fluctuations.

Jim Duncan is technical manager of MOM Systems in Aberdeen, and he favours the "Buffer" explanation. MOM is relaunching its US-written Condor microcomputer database, which competes with Ashton Tate's big selling dBase II package. He gives a salutory warning to those who would equate dollar prices with pounds.

"If you did a direct translation of prices, you would probably end up losing money, taking the exchange rate at present of around $1.60 to the pound. It is standard practice I know, but it very much depends on each circumstance," says Duncan.

MOM is selling Condor "far cheaper" than the US software author of the same name, because it managed to strike a good deal for this product. On sale in the UK for £295, the US price of $650 is considerably higher.

Duncan says he has done direct translations of dollar for pound prices in the past, "often because the US supplier will give you an unrealistic recommended price". And, he adds, "because in many cases it is easier to do that rather than take the risk of fluctuations".

"The effective margin of around 30% — with exchange rates fluctuating between $1.60 and $1.40 — is more of a buffer for us. To prevent wild price fluctuations it is often best to take the simple translation price," Duncan says.

One or two packaged software distributors, more prevalent in America, have been in the UK market for some time, Lifeboat set up a UK alternative to its New York operation back in 1979, and its current manageress is Helen Smith. Lifeboat is one of the few distributors of microcomputer packages to offer comparable prices on both sides of the Atlantic, with no strings.

"If one of my customers wants to buy software, then he should be able to buy it at the same street price here as in New York," says Smith.

Lifeboat is one of the world's largest software publishers, marketing packages for smaller firms.

Lifeboat succeeds by being dependable, according to Smith. "We want to keep our prices stable. That means thinking ahead, and taking more trouble over things like currency fluctuations. If the exchange rate is $1.80, we win, but if it drops to below about $1.50, we're going to lose out."

On the whole microcomputer software consumers in this country are not getting ripped off, but neither are they getting the enviable deal of their American counterparts. The abundance of packages in the US means that distributors are needed, to transport it over the Atlantic.

In the course of that journey, there are costs. Profits must be made, or the distributor would not bother. There is the problem of who will support the software, and of the ever fluctuating exchange rate.

And like hardware, software goes through its price cycles — getting cheaper as sales rise, So the mass marketing organisations are able to sell hits like VisiCalc very cheaply, until something better comes along.

MUSIC

Richard Veryard reports on the revolution in musical instruments

The latest sounds are strictly digital

ABOUT 200 years ago, music was transformed by the introduction of a new instrument – the piano. From Beethoven to the present day, most composers have been able to play the piano, and many have been virtuoso performers.

Since its invention, and particularly in the 19th century, the piano has dominated the history of music. Pieces intended for whole orchestras of string and wind instruments have been arranged for the piano. Before the days of radio and record players, every music-lover had one in the drawing room.

Attitudes towards harmony and tonality changed under the influence of the new instrument, so that even pieces for "traditional" instruments such as the violin or the human voice were written according to the new ideas of musical composition learned from playing the piano.

We are now seeing the emergence of a new musical instrument, which can be expected to dominate the musical world of the 21st century at least as much as the piano did in the 19th. That instrument is the computer.

How can a computer produce music? An ordinary digital processor can only output numbers. To convert these numbers into anything else – from a pattern of coloured dots on a screen to a new design of microchip – requires specialised hardware or software, or human effort.

Early attempts at computer music, for example by Iannis Xenakis in the 1950s, relied on human effort. The composer would write a program (usually including a random-number generator) which printed out tables of numbers. The composer would then have to transcribe this "stochastic structure" on to a musical score, which could then be played in the traditional manner by human performers.

This is, in effect, an up-to-date version of a technique used by Mozart, who is known to have thrown dice to decide upon a pattern of notes. The disadvantages in this method of working are obvious: it was laborious and error-prone. The advantage, besides simplicity, is that the composer has the opportunity to adjust the output to achieve a more aesthetically pleasing result.

A computer can of course do more than merely serve as an expensive roulette wheel or set of dice. If the algorithm for getting the notes from the numbers can be coded in a high-level language, the computer should be able to print the musical score directly. Several systems are available to do this, including the Synclavier and the Apple Soundchaser.

New opportunities for the application of computers in music have arisen from the replacement of analogue recording techniques by digital recording. Not only professional studios but many hi-fi fanatics as well have equipped themselves with digital tape-recorders.

A unit can be bought for a few hundred pounds to convert a Betamax video-recorder into a digital tape-recorder, and digital discs give a far higher sound quality than ordinary LPs. Instead of representing sound as a magnetic waveform, it can be stored by sampling the amplitude of the waveform at small intervals, typically at a rate of 30K-50K per second.

Besides being used to process this sound, a computer can generate sound from scratch by calculating the amplitude numbers mathematically. This is known as direct digital synthesis.

If a computer is to produce sound real time (or "live"), it must be able to calculate the numbers that represent the sound at a faster rate than the sampling rate. Since the programs involve a lot of heavy number-crunching, this was not possible in the early days of direct digital synthesis, and the sound was generated in two passes.

First the program would be run to calculate the amplitude numbers. This would typically take several minutes of CPU time for only a few seconds of output sound. Then the numbers would be retrieved in a second pass and fed through a digital-to-analogue converter to a loudspeaker.

In the last few years, improved hardware and software have made these two passes unnecessary, and the synthesis can be carried out live.

There are two main mathematical methods for calculating the waveform. The first method, used in programs written at Bell Labs and MIT in the 1950s and 1960s, involves the theory of Fourier Analysis.

A sound is broken down into its harmonic components, which are simple sine waves. These are then added together, using Fourier Transformation, to produce the wanted sound. This is known as additive synthesis. It relies on a conceptual model of music that dates back to Pythagoras. He showed that a vibrating object, if it was long and thin, such as a flute or a guitar string, generated sounds of different pitches, which were related to one another by whole-number ratios.

Pythagoras's harmonics, however, do not apply to vibrating objects that are not long and thin. Percussion instruments, such as bells, make sounds that are not conducive to additive synthesis. The human voice, however sweet it sounds, is also in this technical sense a non-harmonic instrument.

The second method of calculating a waveform is to produce a simulation model of the vibrating object in order to determine the sound that would be emitted. At the acoustic research institute IRCAM in Paris, for example, the Chant system uses a simulation of the vocal tract to synthesise the sound of the human voice.

The same technique has been applied to problems of analysing and synthesising industrial noise. Trainee airline pilots in a flight simulator can be confronted with the sound of a plane in difficulties, without anyone having to crash a plane in order to record the sound. Ircam has teamed up with Sogitec, a French industrial simulation firm, to sell the 4X real time digital signal processor, for such industrial applications and for musical composition.

In the systems described so far, the computer output is a digital representation of the sound. This can be converted into voltage fluctuations, which can then be smoothed, amplified and played through a loudspeaker.

Several hybrid systems have been developed in which the computer output is used to control some other device. A pipe organ can be played by a computer by wiring the computer to electric motors fitted to the valves of the organ.

A more common form of hybrid system includes a computer and a synthesizer. The voltage-controlled synthesizer was invented by Robert Moog in the mid-1960s, and has been used by rock musicians for over a decade. It may be controlled by hand using a panel of patch cords (like an old-fashioned telephone switchboard), knobs and switches. These control and combine the various components of the synthesizer, which include oscillators, filters, voltage-controlled amplifiers, mixers, voltage processors, trigger generators, ring modulators, envelope generators and a sequencer.

All these can of course be controlled by computer instead of by hand. The EMS studio in Stockholm contains one of the most sophisticated examples of this type of analogue hybrid system.

The Moog synthesizer is an analogue device; it processes data in the form of voltages.

The digital hybrid system can be much more efficient for generating simple sounds than a direct system. As would be expected, it achieves this at a cost of limiting the scope and flexibility, but not to an extent that affects many users.

The Fairlight CMI, invented by Australians Kim Ryrie and Peter Vogel, is a good example of a digital hybrid system. It combines familiar units of hardware and software (general-purpose processor with Basic compiler, floppy discs, VDU and light-pen and typewriter keyboard) with specially designed software and peripherals, including eight digital synthesizers (to provide eight-track sound output) and a six-octave piano keyboard.

Fairlight systems have been installed in a handful of university music departments in the UK, but the main market is in the rock music industry. Many rock stars possess a machine

KATE BUSH . . . Has used the Fairlight system on recordings.

Fairlight systems have been installed in a handful of university music departments in the UK, but the main market is in the rock music industry. Many rock stars possess a machine; among those who acknowledge it are Kate Bush and Alan Parsons.

The Fairlight system is designed to construct pieces of music from single synthesized notes. A note can be generated from scratch, using additive synthesis as described above. Alternatively, the system allows sounds to be input through a microphone which samples it and converts it to a digital representation for manipulation by the computer.

Once stored on disc, the sound can be edited and modified. The characteristics of the sound – pitch, duration, attack, damping, vibrato – are treated as independent parameters that can be varied one-by-one. These sounds are the raw material for pieces of music; the composer builds melodies and accompaniment from these notes as if they were Lego bricks.

They can be strung together in up to eight independent "voices", either by writing programs in the interpreted language MCL or by playing the required sequence of notes on the piano keyboard.

The piano keyboard can be used live, calling up raw sounds input beforehand. Rock musicians who can't play the piano, not even with two fingers, are provided with a guitar interface.

A composer can thus assemble anything, from repetitive backing tracks to entire pieces of film or serious music, using a very few basic sounds input. A single bass-guitar note can be played into the sampling microphone and stored on floppy disc. The computer analyses this note and allows each characteristic to be altered until the right "shape" is achieved.

Small variations in pitch, timbre and duration leave notes still recognisable as bass-guitar notes. By stringing together these different modifications of the original note, the whole bass-guitar track can be laid down. It will probably be more accurate than a real musician could have played it.

When the parameters are varied more widely, sounds are produced which are no longer recognisable as bass-guitar notes, and which could not be played by any guitarist, however virtuoso.

Alejandro Vinao is a composer who works in the electronic music studio at City University. His recent piece Hendrix Haze, inspired by the musical gestures of Jimmy Hendrix, was mostly composed on the university's Fairlight system, but the limitations of that system forced him to complete the piece in the EMS studio in Stockholm.

The piece contrasts two approaches to computer music: composing *with* notes and composing *inside* notes. The Fairlight system is quite good at composing with notes, in other words treating notes as atoms from which the music is assembled, much as an organic chemist would stick atoms together to make complex polymers.

It is not so good for the composer who wants to shape notes from the inside (equivalent in analogy to subatomic physics). A composer often wants a single note, lasting several seconds, to vary its characteristics while it is being played. The most obvious example is a glissando, where a note changes its pitch from beginning to end.

The City team has developed a technique of using a second output voice to control the parameters of the first; this technique provides a roundabout way of sliding pitch or vibrato within a single note, but this technique was not powerful enough for Vinao.

It may be deduced from what has been said so far that computer music has some way to go before it establishes itself fully in the mainstream of musical life.

In the first stage of computer music development, the computer carried out instructions laid down in advance in order to generate music in advance. We are now in the second stage of development, where at least music can be generated in real time.

In a couple of years we can expect to see the composer controlling all aspects of the music with real time input during a live concert. This will allow jazz musicians to play on the computer, or on computer-assisted instruments, in free improvisations.

The problems to be solved before we reach this third, mature stage of development are equally conceptual. How is the musician to control the computer? He must be given the freedom to follow his musical intellect or instinct. He must be given the maximum expressive power. How is he to be given this freedom, this power, without the system becoming too complicated to use properly?

The research continues on several other fronts. Enhancements in processor speed will allow more number-crunching to be done live. The computer is basically a mono instrument (if we exclude hybrid systems); software and parallel processing will allow it to become truly stereophonic.

Hendrix Haze by Alejandro Vinao, together with computer compositions by Richard Attree and others, will be played at the Almeida Theatre, Islington, London on Sunday, August 14 at 8pm, and will be released as a record on the Digital Arts label.

MOZART . . . Threw dice as an aid to composition.

KIM RYRIE (centre) . . . Co-inventor of the Fairlight system.

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by Andrew Thomas

COMPUTASTARS

Sponsored by Computer Weekly.

Taking part in this year's UK finals

LISTED below are those who took part in the UK finals. An asterisk denotes the team captain.

MEN

Rank Xerox: Eugene Addow, Fergus Browne, Kester Davatwal*, Jonny Purkis, Russell Taomn.
Digital (2): Steve Leadley*, Simon Pentland, Paul McCarron, Ian Turner, Frankie Vaughan.
Computer Systems & Products: Andy Fletcher, Adrian Hall, Roman Kent, Kevin Morris, Simon Russell*
Commercial Union: Gordon Davies, Andy Butteridge, Steve Hickmott, Graham King*, Mike Stuckey.
Centre-file (1): Paul Adams, Cyril Chan, Colin Thomas, Derek Welch*, Horace White.
Thorn-EMI: Dave Cashmore, Mike Howes, Paul Humphries, John Tipping*, Nick Velk.
National Provident Institution: Dave Cross*, Dave May, Mike Parks, Geoff Williamson.
Ford Motor Co: Mark Atkinson, Paul Bastin*, Chris Harries, Grant Mansfield, Colin Watt.
Capsicum: Chris Evans*, Cliff Ford, Richard Pepper.
Legal & General Veterans: Rob Catt, Colin Payne*, Terry Slattery, Dave Wylie.
British Aerospace (2): Stewart Aylott, Russell Batten*, Garry Murray, Phil Walker, Tony Weise.
Bank of America (1): Eric Mackman, Don Morgan, Mike Norton, Vernon Turner*, John Wynn.
Fisons: Hugh Allan, Richard Downs, John Howard, Richard Langton, David Worth*.
Sheffield Insulating Small Unit: Bob Davies, Mike Milne, Mark Warren, John Whaling, Keith Whitham*.
Heywood & Partners (1): Clive Bennett*, Ian Bowles, Bill Edwards, Paul Miller, Phil Mylotte.
Barclays International (1): Mike Carrington, Ian Carter*, Kevin Doolan, Gary Rook, Paul Skevington.
Hartley Cooper: Paul Allan, Jeff Martin*, Steven Pegg, Steve Skelton, Martin Waller.
Open University: Graham Cox, Dave Findel-Hawkins, Charles Kendall, Chris Slack*, Gareth Stevens.
London Borough of Lambeth: Mark Albertsen, Geoff Clarke*, Paul Whyte, Pete Wright, Brian Young.
Crawford Computing (1): Barry Ching, Joseph Hughes, Robert Hurst, Sheldon Stout, Philip Williams*.
Kalamazoo (1): Jeff Harrison, Richard Jephcott*, Roy Osborne, Richard Smith, Phil Wright.
Bank of America Veterans: Jerry Dunnet*, Geoff Evans, Joe Mendell, Tom Sumner, Keith Walker.
Scottish Widows: Bernie Callaghan, John Cossar, David Halliday, John McVie, Pete Nicolson*.
British Rail: David Ellison*, Roland Gibbard, Nigel Robinson, Nicholas Simpson, David Wride.
Rowntree Mackintosh (1): Tim Brandreth, Alan Johnston, John Macloughlin, Andy Normandale*, Tony Pratt.
Kalamazoo (2): Barry Durman, Ray Hendrickson, Malcolm Shuttleworth, John Wakelam*, John Whitlock.
Barclays Radbroke: John Bramble, Dave Cain, Ian Cichocki, Steve Hanby*, Hopeton Levy.
British Shoe Corp: Stephen Bixley, David Blums*, Stephen Eaves, Phillip King, Peter Yarrow.
Scottish Widows Veterans: Bill Hamilton, George Laing, Neil McCorquodale, Jim McGregor*, John Munro.
Robert Horne (1): Duncan McLean, Tony Osborn, Andy Price*, [illegible]
Rowntree Mackintosh (2): Bob Cowl, Ian Gibson, John Grant, Mike Hawtree, Martyn Scott*.

WOMEN

Barclays Radbroke: Lindsay Heyworth, Lorraine Hughes, Liz Porter*, Caroline Pritchard, Helen Rogers.
Legal & General: Anne Bragg, Val Edwards, Rae Lyon, Sue Mason, Wendy Muggeridge*.
Bank of America: Gill Amis, Carol Barry, Chris Beckham*, Janine Greener.
Kalamazoo: Chris Atherstuch*, Alison Grant, Anthea Robinson, Julie Wakelam, Sue Wright.
Bass Services: Carolyn Brice*, Ann Freeman, Marion Gabourel, Janet Hargreaves, Carole Shipley.
Digital: Carol Botting, Sue Dawson, Toni Franklin, Sue Richardson*, Karen Wormald.
Mercantile Credit: Caroline Carter Jonas*, Debbie Ive, Breda McGhee, Shaun Wallace, Nicky Woods.
Case (1): Denise Berlingford, Janet Carter, Gail May, Mandy Pearce, Betty Proude.
Surrey County Council: Ruth Boden, Daphne Cooke, Pam Fellows, Janice Key*.
Commercial Union: Dee Gurr, Felicity Smith*, Margaretta Squire, Fiona Stammings, Sonia Turner.
Centre-file: Nicola Abbott, Dorothy Grypetis, Kim Holwell, Jane Quinn, Ailsa White*.
Crawford Computing: Pauline Day, Alison Flynn, Linda Hollywood, Jenny Vicary, Caroline Williamson.

COMPUTATUG

An asterisk denotes the coach.

MEN

Plessey Management Services: Colin Ansell, Paul Ball, Dave Bumstead, Richard Hebdan, Andy Keane, Ian Lobb, Kevin Masters*, Ray Murrell.
Centre-file: Bernie Barnett, Alan Bills, Colin Handley, Steve Jones, John Masterson, Gary Watson.
Inland Revenue: Graeme Challis, Adrian Grant, Mick Harvey, Graham Leach, Allan Moores, Jim O'Mahoney, John Scott, Dave Taylor, Keith Freak*.
Thorn-EMI: Leigh Bartlett, Neil Baxter, Rob Cook, Norman Dalloe, Pete Marr, Jeremy Mason, Mark Miller, Stan Stanley*.
Probe Data Systems.
Barclays Bank International: Stan Gavigan, Chris Harris, Geoff Knight, Boyd Parker*, Nick Porcher, Pete Straughan, Ross Vickers, Pete Whitlet.

WOMEN

Barclays Bank International: Sue Barber, Kath Baxendale, Caroline Bishop, Paula Murawski, Sandra Upshall, Bid Whitlet.
Inland Revenue: Hazel Finn, Debbie Hardie, Angela Moluet.

Legal & General's Anne Bragg . . . two first places and victory in the women's individual.

The victorious Kalamazoo ladies look happy with their success.

Phil Wright . . . UK champion.

First, second and third places for (from left to right) Heywood & Partners, Kalamazoo 1 and Crawford Computing.

Digital's Simon Pentland leads at the water jump.

Paul Whyte . . . best performance in the shot

Gail May heads for home in the relay.

Heywood and Kalamazoo triumph by narrow margins

AFTER basking in the sun at the regional heats, Computastars finalists and officials were treated to a deluge of truly Mancunian proportions, albeit at Birmingham. The sodden stars splashed their way through the morning's events with commendable courage and a large number of umbrellas.

A vital adjunct for the first event, the shot, was a dry towel to dry off the slippery sphere. A throw of well over 16 metres by Paul Whyte of the London Borough of Lambeth, coupled with good performances from the rest of the team, saw Lambeth take an early lead.

Best performance by a number one came from Vernon Turner, of Bank of America, beating Steve Skelton from Hartley Cooper into second place.

Kalamazoo's women started well, taking first place in the first three events. Case was runner-up to Kalamazoo in the shot, while Ailsa White, of Centre-file, took the first of four individual victories, beating Anne Bragg of Legal & General and Janet Carter of Case into joint second.

The hockey dribbling was made doubly difficult by the slippery conditions, with the earlier teams perhaps at an advantage as the course became more treacherous as the event went on. But it was one of the last teams to go, British Shoe Corporation, which triumphed over adversity, with number one Philip King putting in a particularly good time to take the individual title.

Kalamazoo's women won again — what do they feed them on? — but it was Centre-file champion Ailsa White who again took the individual title, this time beating Janet Carter by three points.

Next came underwater netball — well, pretty wet netball anyway. Best male performances came from Rowntree Mackintosh 1's team and Commercial Union number one Graham King.

Yes, it was Kalamazoo's ladies in the driving seat yet again, and Ailsa White taking the individual.

In an unusually kindly act, competition organiser Gordon Cairns decided that the track was too wet for the sit ups, and postponed the event until later. Therefore, the team sprints were brought forward from the afternoon.

A considerably shorter course than before meant more sprints were possible in the allotted time, and a commensurately higher number of starts meant a more tiring event, thus dispelling any thoughts that the organiser was getting soft.

Legal & General's women's team splashed its way to first place in the sprints, with a three-way tie for second place between Kalamazoo, Barclays and Commercial Union. Legal & General number one Anne Bragg took her first victory of the day, and another three champions, Alison Grant, Liz Porter and Sonia Turner, tied for second.

At the break, Kalamazoo led Legal & General by 134 points to 114, with Barclays one point behind. Ailsa White was in the lead by a single point over Anne Bragg. Alison Grant was third, eight points adrift.

Best male sprinters proved to be Heywood and Crawford, tying for first place, with their respective number ones, Bill Edwards and Robert Hurst, duplicating the situation in the individual competition.

Men's positions at the interval were Heywood & Partners in front, with Kalamazoo 1 a single point behind. Crawford was lying third, Rowntree Mackintosh fourth and Digital 2 fifth.

After lunch, we finally got round to the sit ups, the track having dried out as the sun tried its damnedest to shine.

The seemingly impregnable record of 74, held by Lambeth number one Geoff Clarke, was beaten by two competitors, both scoring a frightening 80. Clarke tried to reply, but only (!) managed 76.

The team title went to Kalamazoo 1, scoring its only victory of the day, and the individual was shared by David Cain of Barclays and Geoff Clarke.

Legal & General's women scored the highest in the sit ups, relegating Barclays to second place. It was Legal & General number one Anne Bragg who took the individual honours, beating Sue Richardson of Digital by five clear points.

In the 400 metres relay, it was the men from Commercial Union running away with the title, with number one Graham King beating Dave Cross of NPI into second place, and Phil Wright of Kalamazoo 1 and Bill Edwards of Heywood into joint third place.

The football dribbling once again saw much wailing and gnashing of teeth, as the time-out rule eliminated many a hopeful footballer. But there was not too much wailing from Robert Hurst of Crawford as he took the individual competition, and no gnashing from his team mates either as they beat Barclays by a two-point margin.

Best female dribblers turned out to be from Legal & General, with Centre-file number one Ailsa White taking her fourth individual victory of the day, making her the most successful female in terms of first places.

And so to the final event — the return, by popular demand, of the steeplechase. Kalamazoo 1 at this juncture was a mere two points behind Heywood, and a good team performance in the steeplechase could bring them victory.

They did indeed turn in a good performance, winning the team event and collecting 38 points for their pains. But Heywood proved to be almost as rapid over the course, finishing a close second with 37 points.

You don't need a computer to work out that that left Kalamazoo 1 just a single point away from overall victory. But there was some consolation for the team as Kalamazoo number one Phil Wright finished joint first in the individual race to end with 92 points and the individual title.

Joint first with Wright in the steeplechase were Bernie Callaghan, Richard Downs, Steve Skelton and Dave Cross, proving again just how close the competition was.

There was not much in it in the women's competition either. Kalamazoo took second place in the steeplechase, gaining 33 points, enough to hold off the challenge of Legal & General, which finished a mere four points behind. They finished with 255 and 251 points respectively. Barclays took the bronze.

Anne Bragg of Legal & General turned in the best time in the steeplechase to give her the individual championship by a 19-point margin over Ailsa White, with Alison Grant third.

Best small unit was Hartley Cooper, finishing a creditable 14th overall.

The old-timers from Scottish Widows took a veteran title with 22nd overall.

The best combined male and female performance came from Kalamazoo, with Barclays second and Commercial Union third.

In the ever-popular Computatug, it was the lovely lads from Thorn-EMI who swept the Inland Revenue men off their feet on the churned-up turf of the Alexander Stadium.

A sad note to end with. Gordon Cairns has not as yet secured a sponsor for the overall European final which brings in Belgium and Holland.

Several potential sponsors have dropped out at the last minute and if no one comes forward by Friday, August 19, there will be no contest on Sunday, September 18.

If you feel your firm can help, in return for the publicity and copious amounts of goodwill, get in touch with Gordon Cairns on 01-688 6690, quickly.

COMPUTASTARS

Sponsored by Computer Weekly.

Geoff Clarke's attempt to regain the record for sit ups failed by just five.

Alison Grant . . . third individually and a member of the winning Kalamazoo team.

Kalamazoo 2's Malcolm Shuttleworth . . . joint fourth in the sit ups.

HEE-E-E-E-AVE!

What? Rain at Computastars?

How many competitors can you see? (Clue — they may be hiding).

How the events were won

MEN'S TEAM RESULTS

Rank	Name	Points	Total
1	Heywood & Partners 1	27 21 35 32 39 31 45 37	267
2	Kalamazoo 1	26 31 34 34 39 28 36 38	266
3	Crawford Computing 1	20 24 26 27 27 37 45 26	232
4	Commercial Union	26 29 30 26 45 27 21 27	231
5	Barclays Radbroke	18 26 29 27 33 35 30 27	225
6	Rowntree Mackintosh 1	25 26 36 31 24 20 24 26	212
7	NPI	25 22 28 19 42 18 21 32	207
8	LB Lambeth	29 28 28 33 30 22 18 19	207
9	Digital 2	21 28 28 25 36 12 30 23	203
10	Kalamazoo 2	22 28 25 29 30 28 18 22	202
11	British Aerospace 2	19 22 29 27 27 14 33 29	200
12	Scottish Widows	22 28 25 22 33 16 24 30	200
13	Bank of America 1	28 26 21 23 21 16 30 28	193
14S	Hartley Cooper	16 26 10 21 30 29 33 28	193
15	Ford Motor Co	23 25 27 23 21 19 30 24	192
16	Barclays Inter 1	27 21 29 24 21 23 21 24	190
17	Thorn-EMI	19 25 26 19 27 25 21 26	188
18S	Sheffield Insul	24 22 22 24 9 29 33 21	184
19	Rowntree Mackintosh 2	22 27 8 26 21 28 30 21	183
20	Fisons	18 21 32 20 15 27 24 23	180
21	Open University	17 23 16 15 27 18 30 26	172
22V	Scottish Widows	23 25 21 22 18 26 18 16	169
23V	Legal & Genral	11 26 28 25 15 22 18 19	164
24	Centre-File 1	18 12 22 28 27 20 12 24	163
25S	CSP	16 27 33 19 15 17 15 19	161
20	British Rail	12 23 23 20 6 21 36 19	160
27	British Shoe Corp	17 39 18 26 6 25 15 20	158
28V	Bank of America	22 17 23 17 6 25 30 15	155
29S	Robert Horne 1	18 23 25 16 18 13 25 17	145
30S	Capsicum	21 25 24 0 10 15 6 0	109

MEN'S INDIVIDUAL RESULTS

Rank	Name	Points	Total
1	Phil Wright	9 12 12 11 13 10 12 13	92
2	Bill Edwards	10 9 10 7 13 11 15 12	87
3	Robert Hurst	8 8 13 7 9 15 15 10	85
4	Bernie Callaghan	9 7 13 10 11 14 8 13	85
5	Dave Cain	4 10 12 13 11 13 10 9	82
0	Graham King	9 8 15 7 15 10 7 6	77
7	Richard Downs	7 11 13 8 5 12 8 13	77
8	Malcolm Shuttleworth	8 13 10 10 10 12 6 8	77
9	Steve Skelton	11 8 4 9 10 10 11 13	76
10	Dave Cross	9 11 8 7 14 5 7 13	74
11	Paul Skevington	10 10 11 11 7 7 7 10	73
12	Geoff Clarke	0 12 9 13 10 7 6 10	73
13	Mike Howes	7 9 10 9 9 7 7 12	70
14	Mike Milne	5 7 8 12 3 13 11 10	69
15	Tim Brandreth	8 6 11 11 8 7 8 9	68
16	Mike Hawtree	7 11 4 8 7 12 10 9	68
17	Steve Leadley	7 7 13 6 12 4 10 7	66
18	Vernon Turner	13 7 5 9 7 3 10 12	66
19	Grant Mansfield	9 12 8 9 7 1 10 9	05
20	Stewart Aylott	5 0 13 9 9 1 11 11	65
21	Tony Osborne	7 4 12 10 0 7 5 10	61
22	Veteran	8 9 10 7 6 7 0 6	59
23	Simon Russell	5 9 12 5 5 9 5 7	57
24	Philip King	4 15 4 11 2 10 5 6	57
25	Roland Gibbard	2 9 11 5 2 1 12 12	54
26	Veteran	7 6 11 4 2 0 10 0	52
27	Horace White	3 2 7 10 9 6 4 10	51
28	Veteran	5 11 4 10 5 4 6 0	51
29	Chris Slack	4 6 7 3 9 1 10 11	51
30	Chris Evans	5 7 7 0 0 1 2 0	28

WOMEN'S TEAM RESULTS

Rank	Name	Points	Total
1	Kalamazoo	30 32 36 27 36 25 33 33	255
2	Legal & General	23 25 21 37 39 26 45 35	251
3	Barclays Radbroke	21 26 33 28 27 22 33 27	217
4	Digital	13 29 34 26 30 23 15 23	193
5	Commercial Union	21 23 30 22 18 22 33 23	192
6	Case	26 21 21 14 45 20 12 32	191
7	Crawford Computing	25 25 27 19 12 15 24 22	169
8	Centre-file	27 28 25 23 6 25 18 15	107
9	Bass Services	25 18 22 23 24 20 0 25	163
10	Surrey CC	21 23 21 16 0 17 27 25	154
11	Mercantile Credit	10 19 18 23 12 18 18 25	149
12	Bank of America	23 11 27 10 12 22 9 18	132

WOMEN'S INDIVIDUAL RESULTS

Rank	Name	Points	Total
1	Anne Bragg	12 11 10 15 13 10 15 15	101
2	Ailsa White	15 15 13 8 2 15 6 8	82
3	Alison Grant	9 9 11 8 12 8 11 12	80
4	Janet Carter	12 12 11 5 15 11 4 10	80
5	Liz Porter	8 7 12 8 9 9 11 13	77
0	Sonia Turner	6 8 13 8 6 10 11 10	72
7	Sue Richardson	7 10 12 10 10 9 5 8	71
8	Caroline Williamson	7 11 12 3 4 9 8 7	61
9	Caroline Carter Jonas	9 10 9 7 4 7 6 7	59
10	Daphne Cooke	[illegible]	[illegible]
11	Carolyn Brice	5 5 4 9 8 10 2 11	54
12	Gillian Amis	9 2 7 6 4 8 3 7	46

Events are, from left to right: shot, hockey, netball, sit ups, relay, football, team sprints, steeplechase.
S denotes a small unit; V, a veteran team.
Scoring by Commodore Computer.

PRODUCTS

Sitemaster monitor keeps the power on

COMPUTERS can now be used to help other computers run more efficiently and reliably. A microprocessor based power monitoring system has been announced by AIR Sales, sole UK distributor of equipment manufactured by the Liebert Corporation, the specialist producer of environmental control systems.

Known as The Sitemaster, the system is claimed to be the ultimate surveillance system for computer electrical power. AIR already supplies equipment which conditions the electrical power on which computers and other related systems are dependent for their economic and effective operation.

The Sitemaster provides a service which is almost equally important as "the conditioning" when "computer grade" power has to be relied upon. It provides continuous protection for computers – monitoring, measuring, and analysing the critical parameters for an entire data-centre power system.

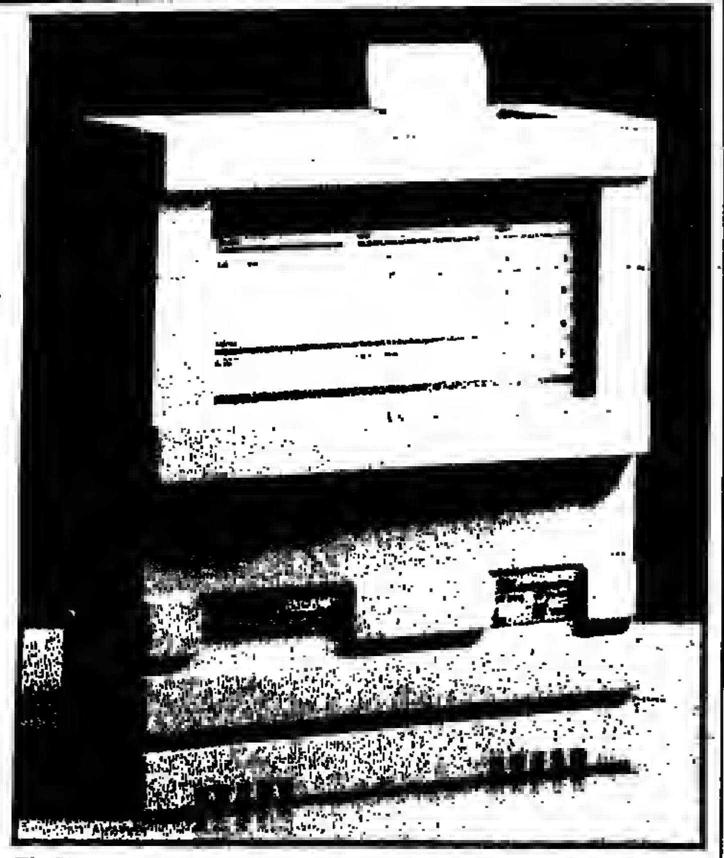
Communicating with up to 24 individual power units, the Sitemaster constantly displays all the electrical and load data at a designated central command position. Simplicity of operation is apparent in the incorporation of a keyboard, menu prompting and minimal keystroke operation.

This system monitors the 10 key parameters of normal power usage including: volts in (phase to phase), volts out (phase to phase), volts out (phase to neutral), neutral current, kVA, kW, ground current frequency, amps out and % capacity. Should any area of power consumption vary from normal levels, the diagnostic Sitemaster warns of potential system operating problems with audible and visual alarm.

In addition to electrical monitoring, the machine offers the ability to interface any other critical computer support system such as: fire/smoke detection, security, environmental and custom specified messages. As many as five of these support functions may be added to each of up to 24 monitored power conditioning systems.

The Sitemaster is also the first computer support system of its kind to assist managers in pinpointing the cause of data processing errors. Now, when data processing errors are detected, thorough electrical power data is available for analysis. This will establish or remove electrical power as a suspect. If permanent documentation of system performance is required an optional printer module is available.

AIR Sales (CW), Unit 5, 92-94 Church Road, Mitcham, Surrey CR4 3TD. Tel: 01-646 1321.



The Sitemaster power monitoring system.

Smallest scanner bar none?

NUMERIC ARTS of Maidenhead has introduced what is claimed to be the world's smallest flat wrought loser scanner.

The Laserscan 6000 is said to open up many new potential applications as a result of its low cost and compact design. Its small size (2.4 × 2.8 × 8.1 inches) allows it to be used in cramped locations where larger devices cannot be fitted. Use of medium speed scanning (40 scans/second) has allowed simple and inexpensive decode technology to be employed resulting in a highly economic reader.

It is fully compatible with the Laserscan 7000 hand-held scanner allowing great flexibility in system design and configuration. Both units can be interfaced with a computer for real-time communications and downstream data processing. The unit is expected to become widely used in many applications including retail point of sale, factory floor data collection, work in progress, forms processing, library circulation control and security access systems.

Laserscan 6000's advanced laser-based automatic scanning technology gives a very high level of performance including reliable reading through transparent coverings, on curved and irregular surfaces, and on poorly printed degraded symbols, and at distances up to 9 inches from the reader.

It incorporates a new proximity type object sensing mechanism that controls the scanning process automatically, turning the system on only when an item enters the reading field: this is believed to be unique in bar-code scanning equipment.

Numeric Arts (CW), Cardinal Road, Maidenhead, Berks SL6 7PP. Tel: (0628) 39753.

The 1000/7000 series computer from CMCS.

'Mini output at micro price' claim

MINICOMPUTER performance at a "micro" price is how C.M. Computer Systems of Chippenham, describes its 1000-7000 Series of microcomputers which with multi-user, multi-tasking capability, allow up to 18 users to carry out a total of 72 jobs simultaneously.

CMCS has based the design of the new series on the advanced Motorola MC6809 microprocessor running in conjunction with the UniFlex operating system.

The company says proven software, which can easily be upgraded, is available for accounting, payroll, and stock control, vehicle maintenance and a specialised package for the dairy trade and many others. Text editing facilities are built in.

Maximum reliability was the principal criterion when designing the new hardware. This has been achieved through the use of gold-plated connections to overcome the corrosion problems associated with tin connectors, the inclusion of three in-built cooling fans (with efficient washable filters) on the inlet side of the computer, and the use of DC rather than AC motors to keep down heat generation.

If the equipment should fail, the pull-out rack design of the 19-inch wide cabinet affords easy access to all component parts, and CMCS is offering a six-days-a-week nationwide service back-up.

Seven micro systems are available in the range with differing amounts of disc storage. Designated 1000 to 7000 inclusive, they have floppy and hard disc combinations giving capacities from 2.5 to nearly 80 megabytes.

Model 1000 has two floppy discs, while model 7000 has a single floppy disc, one Winchester 5.25-inch hard disc, and a Cyquist removable cartridge.

Irrespective of which discs are installed, the whole computer system with the exception of the intelligent terminal(s) and other peripherals is housed in one 19-inch cabinet. Later expansion of the system is made within this same cabinet, making for a modular, flexible set-up. Special systems can also be tailored to customers' requirements.

One built-in power supply feeds all parts of the CMCS microcomputer, eliminating the drawback of several individual power packs which many computers have, namely variations in supply levels and the possibility of creating a floating earth.

The line voltage conditioner smooths the incoming mains supply up to a maximum of five amps. It is unaffected by frequency variations, has fast response to transients, and good thermal stability, so providing reliable regulation and protection for the sensitive electronic components.

At the rear, a mains distribution panel houses three 3-pin sockets to power peripherals and test equipment, the output being on the "clean" side of the regulator. This obviates the all-too-familiar, dangerous, and unattractive confusion of wires which emanate from the back of many computer cabinets that are on the market, says CMCS.

Basic, Cobol, Fortran, C, and Pascal are supported. The system also supports print spooling.

C. M. Computer Systems, Systems House, Bumpers Farm Industrial Estate, Chippenham, Wilts. Tel: Chippenham (0249) 651341.

Disctron adds to its Winchester disc range

THE LATEST addition to the Disctron range of 5.25 inch Winchester disc drives is the D-700 Series, offering storage capacities of 26.9, 44.9 and 62.7Mbytes (unformatted). Available in the UK from Micro Memory Systems, Disctron's sole European representative, the new drives use plated media, and have a new design of mini-Winchester read/write head.

Data is carried on two, three or four thin film plated fixed discs, with one surface reserved for track following servo information. The thin film plating provides several benefits over standard oxides – in particular a more consistent recording surface, better magnetic resolution, less susceptibility to contamination and greater durability.

Linear voice coils and true closed-loop positioning are used, to provide maximum accuracy, and the drives have an average access time of 35 milliseconds.

In common with all the Disctron 5.25in Winchesters, the new drives have a landing/shipping zone outside the data area, to protect against data errors and loss. When powered down, heads are automatically retracted to this dedicated landing zone and locked in place. Another feature the D-700 family shares with other Disctron drives is very low heat dissipation – a mere 20 Watts.

With a standard mini-floppy form factor, standard DC voltages (+5 and +12V) and standard extended floppy interfacing (ST412) the new drives are particularly suited for use in multi-user multi-tasking systems and networks, portable computers, industrial systems and other applications demanding dependable, high capacity data storage.

Micro Memory Systems, Kennet House, 65 London Road, Newbury, Berkshire RG13 1JN. Tel: (0635) 40405.

Multi-purpose printer

DATA TYPE has introduced the Infoscribe 1100, a multi-function serial matrix printer that can operate in draft/data processing, correspondence, business letter, and graphics modes.

"The Infoscribe 1100 has been designed to offer the business or professional user a great deal of flexibility in demanding business applications," comments Alan Richardson, Data Type sales manager. "It eliminates the expense of purchasing two or more printers to perform separate functions."

The Model 1100 provides business letter characters and high resolution graphics at 40 characters per second, together with draft/data processing at 200 cps, and correspondence printing at 100 cps. By implementing a half dot paper advance and running in a dual-pass print mode with a 19 × 18 matrix, very high quality characters are printed.

In the standard dot-addressable graphic mode, the printer's resolution is 72 × 72 dots per inch. For high density graphics, or a highly detailed picture, a resolution of 144 × 144 dots per inch is used.

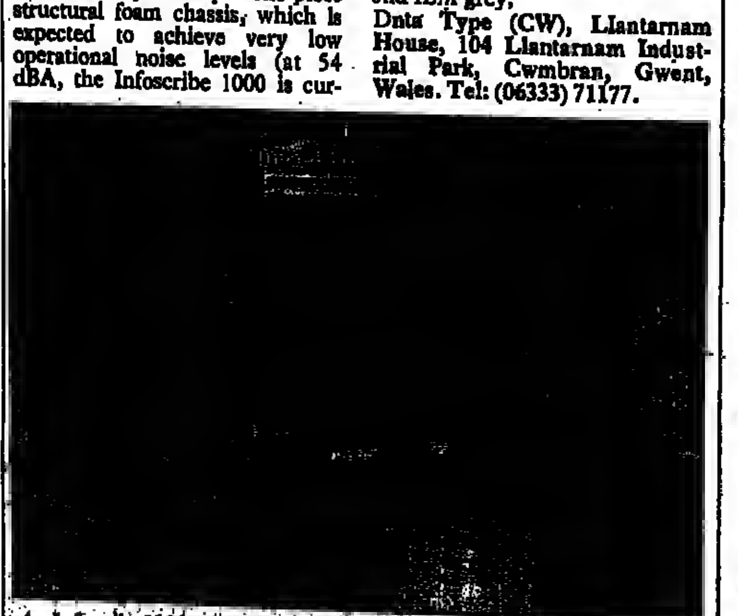
The Infoscribe 1100 will also utilise a newly developed one-piece structural foam chassis, which is expected to achieve very low operational noise levels (at 54 dBA, the Infoscribe 1000 is currently one of the quietest printers on the market). With the structural foam chassis, sound is dissipated 16 times faster than in metal.

The most significant benefit of using the structural foam chassis on the Infoscribe 1100 according to Alan Richardson, "is appreciably better print quality in the business letter mode, as compared to the use of a metal chassis."

Standard features of the Infoscribe 1100 include: 7 × 9, 14 × 9, or 19 × 18 dot matrix, 10, 12, 16.5 characters per inch; six or eight lines per inch; double wide printing; bi-directional printing; superscripts and subscripts; true lower-case descenders and underlining; 3500 character input buffer; cartridge ribbon; parallel or serial interface; versatile graphics; forms length selection; vertical format control; integral self-test; two resident character sets; one downloadable (programmable) character set; microprocessor control; and paper out indication.

The Infoscribe 1100 is 7.25 inches high, 25.5 inches wide, 15 inches deep, and weighs 37 pounds. The printer is available in three colours: ivory, red and ivory, and IBM grey.

Data Type (CW), Llantarnam House, 104 Llantarnam Industrial Park, Cwmbran, Gwent, Wales. Tel: (06333) 71177.



An Infoscribe 1100 printer is tested at the US factory.

GCS offers comms control for SNA users

GCS Communications, supplier of protocol converters has announced the GCS Series II 3770 converter, a low-cost flexible communications controller suitable for remote job entry batch type applications within an SNA environment.

Representing a similar device to the IBM 3776 models 3 and 4 and the IBM 3777 model 3 remote job entry workstations, the GCS Series II 3770 converter is a multiple logical unit device which performs all the SDLC protocol communications, error checking and data translation for its attached peripherals.

Up to eight peripheral devices can be supported. The GCS Series II 3770 converter is said to provide significant cost saving advantages for the IBM user in that the less expensive peripherals can be commonly available asynchronous devices.

The GCS Series II 3770 converter can also be used as a gateway into an SNA environment for a variety of micros and peripherals which either do not have their own SNA controller or whose users wish to ensure that the SDLC does not inhibit the operation of that particular device.

With discounts starting at £3,324 for a two-port device and with quantity discounts of up to 24% available for 25 converters or more, the GCS Series II 3770 offers an attractive alternative for the IBM user.

In addition to the 3770 capability, GCS also offers IBM 2780 and HASP batch converters.

GCS Communications (CW), Orion Park, 226-236 Northfield Avenue, London W13 9QU. Tel: 01-579 9401.

Geomap is ready for the big push

THE FINAL two modules have been added to Wild Heerbrugg's Geomap automated surveying and map-making software, enabling the company to push the package as a complete and stable turnkey product.

Geomap was sold to its first user, Mason Land Surveys of Dunfermline, in 1981. It had been developed in response to users of Wild's electronic theodolite who had said that it was fine to have all their field reading output on magnetic tape, but why couldn't they have a system capable of doing something sensible with the data.

The latest two modules add cross-section creation and support for the interactive digitising of existing maps to a system that majors on its graphics editing facilities.

Technical consultant Nick Price said: "Wild took the middle chunk of making a map, which is the drawing, and made it an interactive task. It represents about 60% of the job."

Geomap runs on a standard Tektronix 4054A desktop computer with a high resolution screen and outputs to Wild's own range of flatbed plotters. A typical configuration costs about £65,000.

Wild Heerbrugg (CW), Revenge Road, Lordswood, Chatham, Kent ME5 8TE. Tel: (0634) 64471.

PRODUCTS

HP makes the surveys easier

HEWLETT-PACKARD, a US software house and a British technical instrument distributor have taken the sweat out of surveying with the launch of a jointly developed system last week.

Called SOI-HASP Digical 11S, the system enables a complete land survey to be carried out from data collection in the field through to the final plot without the surveyor putting pen to paper.

The system runs on Hewlett-Packard Series 200 32-bit microcomputers and peripherals, and can link using a modern electronic theodolite via a Kern R48 digital data logger.

The software, which is designed by Vertical software house Hogan and Smith Photogrammetric Systems, processes digital survey information allowing three dimensional terrains to be structured.

"A plan that would take 4½ hours to draw up can be done in 20 minutes," claims Ron Hogan, president of Hogan and Smith Photogrammetric Systems, who is himself a land surveyor and civil engineer, "and the system allows surveyors to be more productive – as all they have to sell is time."

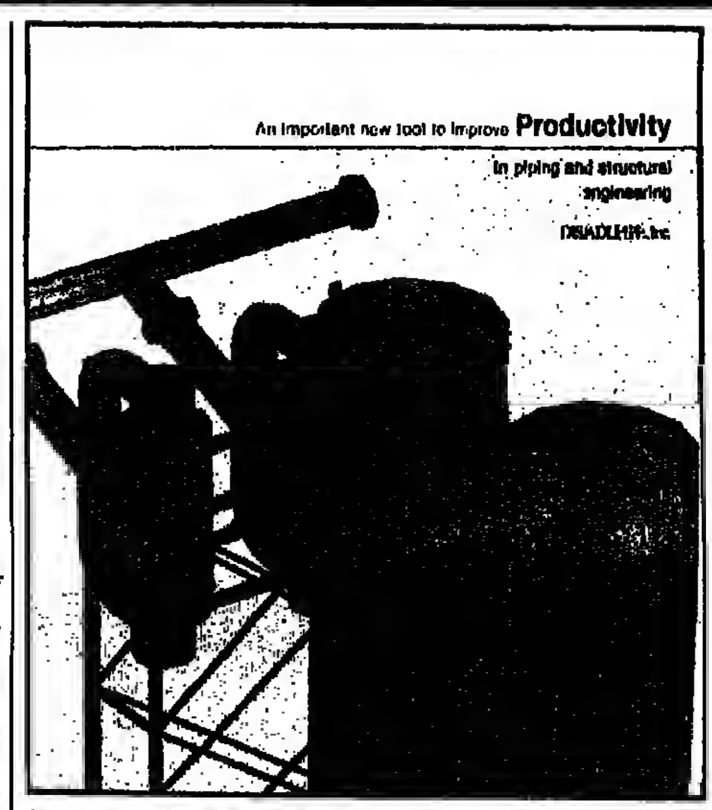
Hogan's company is based next door to Hewlett-Packard in Fort Collins and Digical 11S is the result of collaboration between the two companies.

The system, which is marketed in the UK by Kent-based distributor Survey and General Instrument, is implemented on Hewlett-Packard's new 32-bit range of 9816, 9826 and 9836 computers.

It requires an internal memory range from 128Kbyte to 528Kbyte and uses Hewlett-Packard's HPL operating system.

A typical package price for a Hewlett-Packard 9816S computer with a 3½in dual disc drive, an FX Hewlett-Packard A4 plotter, an Epson FX80 printer, GTCO digitiser and software, works out at around £22,250.

Survey & General Instrument (CW), Fircroft Way, Edenbridge, Kent TN8 6HA. Tel: (0732) 864111.



The DIS System brochure is free.

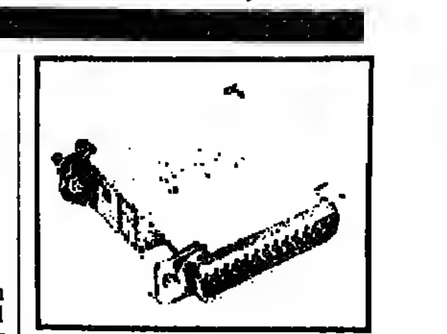
Piping design explained

A BROCHURE that describes an integrated design, analysis and construction computer system for piping and structural engineering is being offered by DIS/ADLPIPE of Cambridge, Massachusettes.

The free brochure describes 3D database software that designers, analysts and estimators may use interactively to generate interference reports, fabrication drawings, bills of materials and cost estimates. Also explained is the DIS interface to all major CAD systems for plant design.

Illustrated with multicoloured line drawings, the six-page DIS Systems Brochure explains the use of a central file of engineering data to communicate to ADLPIPE stress analysis, Adinap non-linear structural analysis and Flownet hydraulic analysis programs.

DIS/ADLPIPE (CW), 55 Wheeler Street, Cambridge, MA 02138, USA. Tel: (617) 492 1991.



The Model 21 Surge Sponge protects against lightning.

Be safe from volt surges

REMARK Datacom has introduced the Model 21 Surge Sponge.

The Surge Sponge is used to protect RS-232 interfaces from high voltage transients that are produced by inductive coupling of interface cables with high power cables.

It also offers the user protection against lightning strikes which may hit the interface cable or somehow be conducted to the interface.

It incorporates fast MOV devices to protect pins 2, 3, 4, 5 and 7 of the RS-232 interface. The respective signal names for these pins are: transmit data, receive data, request to send, clear to send and signal ground.

All voltages appearing on any of these pins exceeding about 27 volts is clamped to frame ground, pin 1.

All pins of the RS-232 interface are wired through the Model 21 so that it appears totally transparent. The Model 21 has no effect on standard RS-232 levels.

The Surge Sponge is packaged in a small plastic case with a male DB25 connector on one side and female DB25 connector on the other side. Both connectors are fitted with standard locking hardware to secure the Model 21 to computers, terminals, printers and cables. It incorporates PC board construction.

The advantage of the Surge Sponge is low cost insurance for computer systems that are plagued by lightning storms that occur in late summer and early fall.

The Surge Sponge sells for $39.95 each, or in quantities of 100, for $32 each.

Remark Datacom (CW), 4 Sycamore Drive, Woodbury, New York 11797.

Qume adds family of terminals to range

QUME (UK), a British company of ITT, has taken a step toward becoming a "one-stop shopping centre" for computer peripherals by announcing a family of CRT terminals.

Qume plans to capture 10-13% of the general purpose terminal market which is estimated at about 500,000 units for 1983.

Qume has introduced three terminals – the 102, 103 and 108.

They all feature a 12in or 14in tilt and swivel display, a small "footprint", and a low-profile, detachable keyboard.

Other standard features include a menu set-up mode into non-volatile memory; non-glare, green or orange screen; 25th status line; large, 9 × 12 cell resolution; screen-saver timeout; self-test mode; line drawing character set; and a state-of-the art power supply.

For distributors who want to optimise their inventory levels, the 102 offers the opportunity to do just that with a terminal that emulates three different competitors' models and has its own "personality" mode.

The 103 uses ANSI × 3.64-1979 compatible codes.

The 108 has 11 additional separate programmable function keys, two pages of memory, and time of day.

Qume (UK), 2 Bridgwater Close, Reading, Berks RG3 1JG. Tel: (0734) 584646.

One of the Qume video terminals.

Brian Tannatt Nash, director of Market Logic, displays the Macrobyte intelligent printer buffer.

Printer buffer is intelligent

MACROBYTE, a new intelligent printer buffer, is now on the UK market from Market Logic.

The 16Kbyte printer buffer, available for under £100, works with any standard Centronics interface printer.

The 32Kbyte version sells at £149.95 and the 64Kbyte at £184.95.

Discounts are available for quantity purchases.

Market Logic, Weavers, Hereford ... 70456.

Manage retail store accounts

IN response to demand from retailers Solitaire-KPG has launched the KPG micro-Store system.

The new business computing package provides a fully integrated solution to accounting and management requirements of departmental and specialist retail stores.

KPG micro-Store uses KPG's own software and hardware from ICL. This combination means that a complete system, including full training and maintenance support, is available for stores with between £½ million and £2 million turnover.

It incorporates five separate suites of programs to cater for all requirements in the management of a retail store: Bought ledger – specialised for the retail trade, this program includes margin control, cash requirements report, supplier turnover, payment via DCT of AIS Cenpac; Merchandising analysis reports – this program provides analysis of department sales, purchases, stocks, markdowns, staff costs, stockturn, and initial and realised margins; Financial reports – these include branch profit and loss, full expense analysis and a comprehensive audit trail; Sales ledger – this program provides for budget and monthly accounts, with control of credit limits and payment arrears; Payroll – this provides complete payroll processing, including analysis of staff costs department by department.

Solitaire-KPG (CW), 578 Chiswick High Road, London W4 5RP. Tel: 01-995 3573.

KPG micro-Store solves accounting and management problems.

Diablo brings in paper feeders

DIABLO has produced four paper-handling accessories for use with its 620 and 630 daisywheel printers.

The new lightweight bi-directional tractor paper feeder can be installed by the user in less than three minutes. No adjustments are needed to the printer's platen or cabinet. The device can handle standard pin-fed paper or multipart forms.

Paper positioning and tension adjustments prevent form or sheet binding. No operator supervision is needed.

A new single-tray cut-sheet feeder can handle a variety of paper sizes and feed one sheet at a time. It can also be controlled by the host computer to feed paper on demand.

For the 630 printer only there are a two-tray sheet feeder and a separate unit handling two trays plus envelopes. This second device enables users to print, for example, the first page of a letter on headed paper and the second page on plain paper, while envelopes can be picked up and printed from a third tray.

All the devices are available on 90-day delivery.

Diablo Systems (CW), ...

Radan improves its CAD system

ADVANCES have been made in the Radraft computer aided design and draughting system produced and marketed by Radan Computational of Bath. Fully integrated multi-workstation systems, in which each computer workstation communicates with a central database computer with hard disc storage of up to 300Mbytes, have been introduced.

The Radan system is now a full, general purpose turnkey CAD system with powerful links to CAM. Optional communication to company mainframe computers is a feature and permits the transfer of drawing data, parts lists and other information.

Another development has enabled an increase in the speed of redraw, or repaint, of the high resolution combined storage and refresh screen of the CAD computer workstation.

An increase of 8:1 in the redraw speed of the 19in screen removes any criticism which may have been previously levelled against the storage mode of this display, which at the same time provides the best resolution available today.

Each computer workstation in the Radraft system may now be enhanced with up to 1Mbyte of local memory, so as to allow rapid operation with complex drawings and many layers.

Other features include automatic dimensioning, calculation of ... text fonts and layering. Prices start at under £30,000.

The integration of Radraft with the well-proven Radpunch system for the preparation and verification of NC tapes for punching and nibbling machines makes a powerful CAE system for sheet metal component manufacture.

Integrated systems are also available for milling, turning, spark erosion and plasma cutting.

For users wishing to employ 3D geometric modelling, the Radraft system is now able to link to the new Radan Geometric Colour Modeller. Sections can be drawn in 2D and translated or rotated to produce 3D model elements which can then be manipulated.

Radan Computational (CW), 19 Belmont, Lansdown Road, Bath BA1 5DZ. Tel: (0225) 332311.

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Forms of tender may be obtained from and are returnable to the Senior Administrative Officer, Wulfrun College of Further Education, Paget Road, Wolverhampton WV6 0DU not later than Monday, 15th August, at 12 noon.

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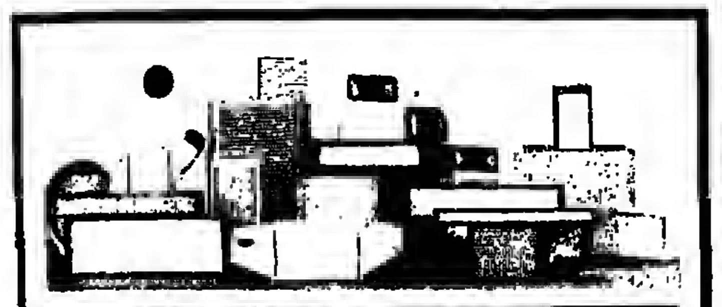

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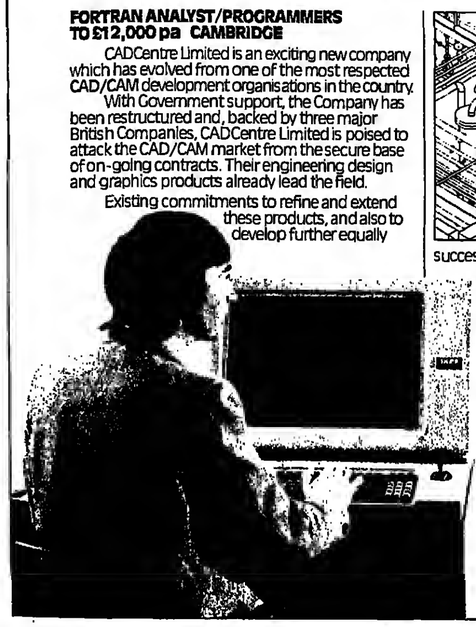

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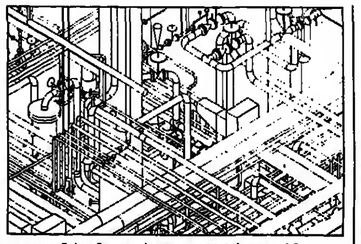
CADCentre Limited



The modern offices are set in a rural location on the outskirts of Cambridge. The University City has excellent shopping, sports and cultural facilities with housing at reasonable prices both in the City and the surrounding villages. Communications are excellent with easy access to the East Coast, The Midlands and London.

Salaries of up to £12,000 pa, flexible working hours and relocation assistance (where appropriate) will make moving to Cambridge easy and enable you to enjoy the lifestyle that CADCentre, the City and the countryside can offer.

So if you want to develop your career in a dynamic new company with a secure future in the growing market of CAD/CAM, telephone or return the coupon below and we will send you an Application Form and full Company Profile.

Please send an Application Form and Company Profile to:
[0483]
Surname _____
First names _____
Full address _____
_____
Home tel _____
Work tel _____ Ext _____

RJB MANPOWER SERVICES LTD.
FREEPOST 24, London W1E 5JZ.
Telephone: 01-439 8591 (24 hour answerphone)

Minicomputer Design

there is no more exciting project

up to £15,000 pa

At a rural location in England, a team of highly skilled professionals is working on one of the most advanced microcomputer systems in the world. They are using several DEC/VAX computers on all prototype work.

The team is part of a company that boasts a strong growth pattern and which has a dominating position in its chosen field. The company now has over 100 R&D staff, backed by a committed management and a solid financial base with an annual turnover per employee nearly twice the industry average. It has a record of exceedingly interesting technical advances.

The company will pay the best in order to attract the best, and also offers free BUPA, a pension scheme, regular salary reviews and relocation assistance to an attractive part of the country.

COMMISSIONING/TEST ENGINEERS

Having proven the first prototype of the new system, the next few copies are about to be made. A number of Engineers are required to commission these **preproduction units** and later to deal with **Pilot Production.**

Your experience must have been gained over two or more years, and should include **TTL logic, bit slice or microprocessor devices, disc subsystems** and familiarity with a wide range of test equipment.

FIRMWARE DESIGN ENGINEERS

Currently this section is applying 16-bit microcomputers to device controller applications. Experience in firmware using high or low level languages is vital as is familiarity with **Intel microprocessors.** Preference will be given if you have experience of intelligent terminal design and/or communications controller design on commercial projects.

SOFTWARE DESIGNERS/PROGRAMMERS

The software teams are currently designing and developing the whole range of software for the multi processor system. This includes at the lower level, system build, configuration and executive support. In addition they are implementing relational database and data dictionary managers, a very high level programming language and a sophisticated user interface.

They need people with systems programming experience in any of the following areas: **executive support, filing systems, report generators, compilers and graphics.**

Systems programmers with experience in other areas will be considered for these positions.

VAX SUPPORT SYSTEMS PROGRAMMERS

This group supplies system development tools to the other groups. Skills required are a detailed knowledge of DEC equipment, ideally VAX under VMS with VAX Macro experience, and fluency in a high level language such as **C or BCPL.**

This is a unique chance to combine technical challenge with the opportunity for professional advancement in one of the fastest growing computer companies in the world.

In some areas there is potential for rapid promotion to **Team Leader.**

For an informal discussion, please phone John Clifford on 01-248 3913.

Alternatively write enclosing a full C.V., identifying the appointment of interest and giving a contact phone number. As applications will be forwarded directly to our client, you should list separately any companies to whom your details are not to be sent. Please quote reference 1195/CW on both letter and envelope.

Deloitte Haskins+Sells
Management Consultants
128 Queen Victoria Street, London EC4P 4JX

TECHNICAL AUTHOR
COMPUTER SOFTWARE

BERKS. **Circ. £13K**

Our client, an international minicomputer manufacturer, is seeking to employ a Technical Author for their "state of the art" product range. These include; a high performance transaction processor, database management system, computer networking packages, systems resilience software and some related application packages.

Responsibilities will include reviewing the technical function specifications of new software products with the development teams, writing end user overview and operation manuals for the products, and reviewing these manuals with selected management.

Ideally applicants will have:

- Minimum 5 years experience in technical authorship and/or software systems and programming.
- Proven interpersonal communications skills.
- Excellent command of written English.

In return you will enjoy an interesting position with one of the worlds most prominent mini computer manufacturers.

For further details, please phone Keith Taylor at our Reading Office, or write enclosing a full C.V.

(4820)

MCL **McCOURT COUSINS LTD.**

27-29 Greyfriars Road, Reading, Berkshire
Telephone (0734) 595346 (24 hours)

Chesham House, 150 Regent Street, London W1R 5FA
Telephone 01-439 6288

Applications are invited by the Police Authority for Northern Ireland from men and women not more than 55 years of age on 11 August 1983 for the posts of:

SYSTEMS ANALYST/PROGRAMMER ANALYST

Required for work in the Royal Ulster Constabulary's Computer Services Branch. Duties will include

(i) Development, installation and enhancement of mini computer systems for administrative and operational requirements.

(ii) Assisting in the operation and maintenance of such systems.

SYSTEMS ANALYST
(Salary Scale £8,166–£10,218)

Applicants must have either a minimum of 5 years experience at least 4 years experience plus a degree, HND or equivalent qualification in computer science, engineering, mathematics or other allied discipline.

PROGRAMMER ANALYST
(Salary Scale £6,819–£8,717)

Applicants must have either a minimum of 3 years relevant computing experience or at least 2 years experience plus a degree, HND or equivalent qualification as above.

Grading and starting salary will be related to qualifications and experience. Allowance may also be made for relevant post graduate experience.

Non-contributory pension scheme (apart from a deduction of 1½% towards provision of widow's pension in the case of male officers).

22 days leave per year in addition to public holidays.

The Authority may decide to interview only those applicants who appear from the information available including qualifications, duration and extent of previous experience, to be best suited for the post.

Application forms which must be returned not later than 11 August 1983 and conditions of service are obtainable from Recruitment Section (Telephone Belfast 230111, Ext 242 and 271).

(4282)

POLICE AUTHORITY FOR NORTHERN IRELAND
5th floor, River House, 48 High Street, Belfast BT1 2DS

Want to work in

SURREY, SUSSEX HANTS, BERKS or KENT?

Experienced in

COBOL, PL/1, RPG 3, FORTRAN or C
on
IBM, ICL, HONEYWELL HEWLETT-PACKARD or PRIME or any other computer?

Programmers, Analyst/Programmers and Systems Analysts are urgently required

PHONE NOW!

AMES PERSONNEL

Please telephone for further details and an application form.

8 CHART WAY, REIGATE, SURREY, RH2 0NZ
TELEPHONE REIGATE (07372) 22219 or 22210

SENIOR PROGRAMMER
VAX & PDP

BASIC+/+2

£9K to £11K

City of London

Rolfe & Nolan Computer Services plc, is one of Europe's fastest-growing timesharing bureaux. Since formation in 1974, they have grown at a rate well in excess of 100% pa, and now offer a comprehensive range of services on a sophisticated DEC network supporting over 100 on-line customers and comprising:

2 × VAX 11/750; 5 × PDP 11/70; PDP 11/44.

To play a vital role in the development of new VAX-based systems for the financial sector, they now seek an ambitious young professional with at least 2 years experience of commercial programming in BASIC+ or BASIC+2 on DEC hardware using VMS, RSTS/E or RSX.

You will be involved in all aspects of the design and programming of advanced systems using the very latest DEC hardware and software.

You will enjoy excellent career progression in a rapidly expanding organisation wherein promotion is both rapid and based strictly on merit.

To arrange an early interview in London, contact Barry Latchford on the number below up to 7pm, or on Newick (082 572) 3197 evenings and weekends, or send a brief cv quoting Ref 685.

(7888)

BL Barry Latchford Associates
Blair House, 7 Hazelgrove Road, Haywards Heath, Sussex RH16 3PH
Tel. (0444) 459815/6/7

Sales Executives

Anadex Ltd., the leading peripherals printer manufacturer, is expanding its UK sales organisation and has immediate vacancies for two experienced peripheral Sales Executives to cover the South of England and the Midlands/North area of the UK.

These two key additions to the Sales Department will be required to expand printer sales through a vigorous and well-established Distributor network and also by direct sales to key accounts.

The ideal candidates will be successful sales people with at least 3 years experience in the UK peripherals marketplace. A sound technical background and familiarity with the end user/dealer/distributor business environment are also essential. Preferred age is 25-35 years; ideal locations would be West of London for the Southern Area position and the Birmingham/Manchester region for the Midlands/North position.

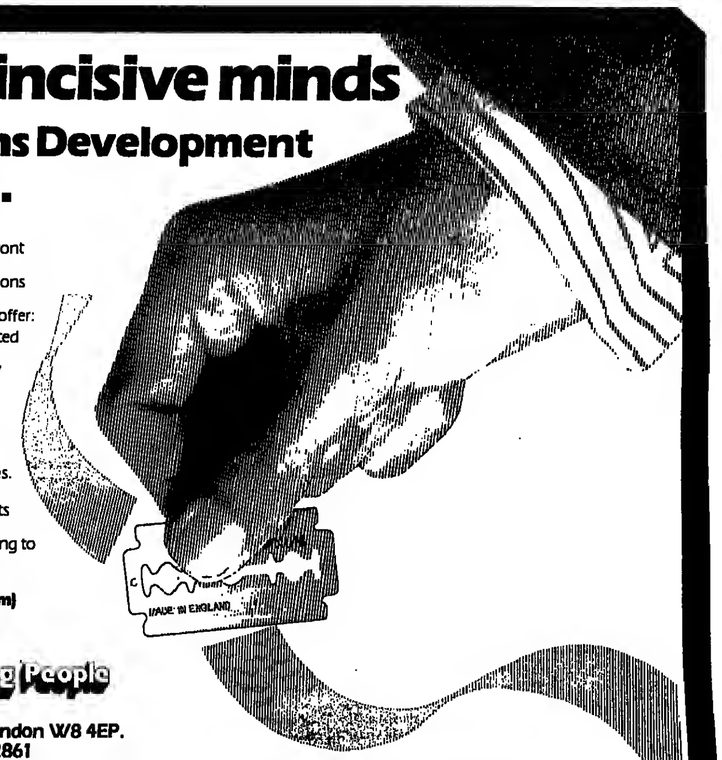
These are key appointments within a sound and rapidly expanding company and will play a vital role in the success of new products currently under development.

A good basic salary will be offered with OTE packages around £20 K. A company car and usual large company benefits will be included.

Please apply in writing to the address below or call Peter Brown for further details.

Anadex Ltd.
Wayvern House, Station Road, Hook, Basingstoke, Hants RG27 9JT
Tel Hook (025 672) 3401

We need sharp incisive minds
for Telecommunications Development
c£12,000 – £20,000 p.a.



It takes sharp incisive minds to keep a company at the forefront of technology.

Correspondingly, only a keen appreciation of career aspirations will satisfy such minds.

For this kind of individual this company has an exceptional offer:

★ A senior design and development role within a highly advanced telecommunications company.
★ Unlimited opportunity to use your innovative skills and satisfy your management potential.
★ Work with a highly professional team of software engineers on one of the world's most comprehensive integrated telephony systems.
★ Utilise your experience of any high level languages within an environment which emphasises rigorous design methodologies.
★ Work on Intel 8086, IBM 370 and VAX 11/780.

A competitive salary is complemented by a generous benefits package and excellent relocation assistance where appropriate.

If you are seeking constant technical challenge and are willing to accept responsibility telephone:

Marc Zundel on 01-938-1804 (24 hours)
or 01-602-0685 (between 7.30pm – 8.30pm)
or write to us with full career details.

IPP **Information Processing People**
Specialist recruitment consultants
20 Kensington Church Street, London W8 4EP.
Telephone: 01-938 1804 Telex: 22861

Burroughs large system computers in Bristol.

Clerical Medical, a leading life assurance society, has a record of sustained growth and a reputation for quality, integrity and service.

We are currently engaged on a programme of computer development using on-line updating and database techniques. Our existing equipment is being replaced by Burroughs large system computers.

Bristol is a thriving financial centre and the location of our head office and data processing group. Situated in the West Country we are surrounded by beautiful countryside and within easy reach of the historic city of Bath and the Cotswolds. Bristol offers an attractive life style and a variety of cultural interests including theatres, concert halls and an arts centre.

DATABASE DESIGNER

to £13,000 plus benefits

Reporting to the Software Manager, you will be at the forefront of new developments and will be responsible for the physical design and subsequent monitoring and optimisation of the company's databases.

Approximately 5 years' experience of software work is required, of which a significant proportion will have involved database design and performance. Knowledge of Burroughs Large System Computers and DMSII would be an advantage.

SYSTEMS ANALYST

to £11,000 plus benefits

You will work in a project team on the development of new systems from investigation to implementation. 4/5 years' systems experience is required and preferably you will have experience of:

— working in a financial organisation
— actuarial systems
— structured systems techniques

Benefits

- preferential mortgage terms
- relocation assistance if appropriate
- non-contributory pension scheme
- subsidised staff restaurant
- social and sports club
- flexible working hours

For more information, telephone Mike Eustace, Technical Services Manager on Bristol (0272) 290566.
Alternatively send full career details to: Mrs. Jill Adams, Personnel Officer, Clerical Medical and General Assurance Society, Narrow Plain, Bristol BS2 0JH.

Clerical Medical

International Data Centre
nd world-wide Telecommunications

Our Client, based in a pleasant environment close by the M1 just north of London, continues to make impressive advances within its field. The Company has a wide range of IBM and other vendor computer equipment processing on-line and batch systems for its operating divisions and subsidiaries across UK and Europe and has telecommunications links to the U.S.A., Africa and Australasia.
A thorough appraisal regarding future strategy has recently been completed resulting in requirements for a number of dedicated computer professionals.
Serious career oriented men and women will want to examine the outstanding opportunities this organisation can offer.
A number of these positions involve international travel.

SYSTEMS SOFTWARE & SUPPORT

Systems Programmer c.£14,000
Senior D.P. Specialist up to £12,000
APL Specialist up to £12,000

Three vacancies are on offer. Firstly there is a requirement for a **Systems Programmer** who has considerable experience of working in an IBM mainframe environment on a range of software which includes MVS/SP, JES3, RACF, ACF/VTAM, IMS DB/DC, Roscoe, and TSO. Quote ref. CW 735

Secondly, they require a **D.P. Specialist** for an interactive support role, who is fully conversant with all areas of IBM software. To advise customers on how best to maximise the efficiency and scope of the system including security, maintenance of software products, planning user requirements etc. Quote ref. CW 734

An essential part of both of these jobs is short-term European travel; therefore a high element of self motivation and personal commitment to achieve company objectives will be required.
Finally, there is a position calling for an **APL Specialist.** This person will support a variety of software and user requirements. Previous bureaux experience would be most appropriate. Quote ref. CW 736

Capacity Planning Specialist up to £14,000

Forecasting user computer demands and utilising modelling techniques to interpret requirements for component upgrades calls for a very specialist skill. The company has recently installed the latest CMF package for capacity planning purposes. Knowledge and experience of IBM hardware and software is essential. The ability to use modelling tools and techniques, inquiry facilities such as APL, SAS and Easytrieve would be desirable.
A high degree of initiative and inventiveness, working without supervision is required. Close liaison with customers in the development of workload forecasts, offering them advice on updates in the rapidly changing DP environment will be very important. This will necessitate European visits. Quote ref. CW 739

Standards Co-ordinator up to £12,000

This is a newly created position. It requires self motivation and the ability to initiate and co-ordinate activities in a multidisciplined and internationally based operational and technology support environment. Success in the job will be measured by the general acceptance of and adherence by users to the technical standards and procedures put in place by the appointant.
You will be responsible for reviewing the existing technical documentation, standards and procedures and rationalising all documentation into user guides and manuals.
Computer technical writing or broad IBM operational experience in mainframes or telecommunications should enable you to co-ordinate the information necessary to formulate standards and procedures and to communicate them to users in clear concise written English. In fact you would be required to act as the focal point for all matters relating to computing and telecommunication standards and procedures. You would also be responsible for assisting with implementation and for auditing compliance with these standards. Knowledge of at least one of the following is essential:

* IBM MVS/SP
* Roscoe or IMS or TSO
* COBOL
* JCL
* Broad IBM operational experience including fault diagnostics, recovery procedures and remedial analysis.

As much of the operational information required for this job resides on APL data bases, a working knowledge of APL is highly desirable. Quote ref. CW 740
All the above call for a good standard of education, although solid experience in the respective fields and good communication skills will be prime requisites.

NETWORK RELATED VACANCIES

Great reliance is placed on international telecommunications systems within the organisation. This comprises a private data network providing batch, interactive and teletype access to mainframe computers, a speech network and message transmission network.
These should be well planned, cost effective with high availability and meet the business needs of customers.

Network Planning Specialist c.£11,500

The person we seek will assist in the planning, evaluation and control function, to ensure that capacity and topology matches evolving traffic patterns and that the benefits of modern technology are identified and secured. An analytical approach to problem solving and practical familiarity with telecommunications equipment and practices will be essential. Some European travel will be involved. Quote ref. CW 737

Network Engineer c.£10,500

Specifically to install, commission and trouble-shoot a range of equipment including modems, statistical multiplexes and switching modules throughout the UK and Europe. An understanding of data-communications at an operational and technical level is essential. Familiarity with the technology of voice and message systems would be a distinct advantage. Documentation skills and practical experience are sought as client regards both as essential. Quote ref. CW 738

OPERATORS

Personnel are required to further strengthen the highly professional Operations Unit. This installation currently utilises an IBM 3083, 4341 and an AMDAHL V8 running MVS/JES, VTAM, IMS, TSO and ROSCOE with an extensive telecommunications network.

Shift Supervisors c.£8,200 +shift allowance

Shift Supervisors should have IBM MVS Operations experience, at least 2 years in a supervisory role and a thorough working knowledge of JCL, utilities and teleprocessing, together with an effective operating knowledge of interactive systems, especially IMS. Their role will be to ensure integrity of system and user data, handle user enquiries, diagnose, refer or solve system and user problems, monitor and report on hardware and teleprocessing systems, and supervise a team of operations personnel.
Because of shift working, own transport will be necessary. Quote ref. CW743

Senior Console Operator c.£7,000 +shift allowance

For this post IMS on-line (particularly Master-Console) experience is essential. Applicants should have had considerable IBM MVS operations experience, display a mature outlook and have their own transport. Duties will involve working closely with a Shift Supervisor to ensure a high level of availability and responsiveness to the processing needs of our client's user community. Quote ref. CW 742

Network Administrator c.£7,000

Voice and Message Systems Management Services seeks an experienced Co-ordinator. Ideal for someone with experience gained in a large commercial or PTT telephone exchange or communications centre seeking a career in the international communications network field.
Duties will involve co-ordinating administrative activities associated with all network services including test procedures, fault control and traffic analysis costs and records, billings, directories and operating the computer based network real time status system to measure traffic on the voice system. Quote ref. CW 741

The company operates a full training programme. Benefits include free life insurance, BUPA, subsidised restaurant facilities etc. In appropriate circumstances a comprehensive relocation package can be made available.
Act now by sending a comprehensive career resume or telephone for an application form in strict confidence quoting the appropriate reference number. You may mention companies to which your application should not be forwarded. Ray Diamond,

GERRARDS
Gerrard Recruitment Services
37 Chapel Side, Moscow Road, London W2 4LJ. Tel: 01-221 3348.

Support the winning team!

"A WORLD LEADER RENOWNED FOR TECHNOLOGICAL INNOVATION AND MANUFACTURE OF DISTRIBUTED MINI COMPUTER SYSTEMS"

Senior Systems Advisor

MIDLANDS – PACKAGE £13K + CAR/ALLOWANCE

The successful candidate will have a positive approach to both pre and post sales situations together with at least 5 years computing experience. It will also be necessary to demonstrate experience of:

- Commercial/Business Systems
- Systems Analysis
- Mini Computers
- Project Management
- Effective communications
- Sales Support

Training Consultant

MIDLANDS – PACKAGE £11K + CAR ALLOWANCE

This important role calls for candidates of a high calibre to provide, administer and develop Business Systems Courses for new and existing users. There will also be considerable involvement with in-house training courses for the company's support team in systems and programming. Desirable qualities will include:

- Effective personal communications skills
- The ability to organise and administer
- Practical experience of Commercial/Business Systems
- Comprehensive knowledge of COBOL
- Credibility at Senior Management level
- Thorough understanding of Data Processing

To be a part of this winning team,
ACT NOW! - for a completely confidential discussion.

Telephone 061 236 1157 during business hours, or Evenings until 9p.m. and weekends, telephone JEFF WALTON on 061 962 0002 or DAVID EASTON on 0270 580129

INTERFACE
RECRUITMENT & SELECTION CONSULTANTS LTD
Manchester House, 86 Princess Street, Manchester M1 6NG. Tel: 061-236 1157.

LONDON AND THE HOME COUNTIES

URGENT REQUIREMENTS

LONDON & HOME COUNTIES £7-£20,000

RPG II, LEARN RPG II	INSURANCE	to £11K
SENIOR PROG TANDEM	MORTGAGE	to £11K
BSO, LEARN 4GL CICS	BANKING	to £12K
TSO, PL1 or COBOL	INSURANCE	to £13K
OSO, CONSULTANCY, PROJECT LEADING		c. £16K + Car
COBOL CICS ANALYST PROG.	INSURANCE	to £17½K
U1100 PROGS, KENT	MORTGAGE	£ NEG.
ADABAS NATURAL AOF COBOL PL1	TRAVEL	c. £12K
OPM SMALL SITE E. MIDLANDS		c. £14K + Car
ANALYSTS LARGE IBM COMMERCIAL		c. £13K
SENIORS PROBS PL1 FINANCIAL MORTGABE		c. £11K
RPG II OIL CO. TRAVEL PROJECTS		to £14K
HERTS. OS OB/DC or TSO/SPF COBOL		£9-18K
12 to 18 MONTHS IBM COBOL, MANY JOBS		£7-8K
STANDARD CO-ORDINATOR GOOD ADMIN		c. £10K
PL1 ANALYST PROGS. LOTS OF DEVELOPMENT		£12K
BURROUGHS PROGS – ALL AREAS, DATABASE DESIGN		£ NEG.
HP 3000, ANALYST PROGS, IMAGE, VIEW, 18 MONTHS		£10K
SERIES 1 PROGRAMMER, CONSULTANCY WORK IN BELGIUM		£12K
COBOL CICS 1 YEAR W. LONDON, TRAINING GIVEN		£10K
PL1 MVS IMS CENTRAL LONDON, NEW TEAM		to £14K
SOFTWARE HOUSE, PROGRAMMERS & DESIGNERS		U.K. & to £20K
EUROPE		
COBOL/CICS CITY, FINANCIAL 18 MONTHS		£PHK
OS FORTRAN + ASSEMBLER COMMERCIAL & SYSTEMS EXPERIENCE		£9-12K
DEC BASIC & DIBOL CHANCE TO MOVE TO IBM PROGRAMMERS		£9½K
HP COBOL ANALYST/PROGS COMMERCIAL SYSTEMS, LONDON & ESSEX		£8-14K
ICL 2966 COBOL PROGRAMMER VME TPS ON-LINE, FRIENDLY SITE		£PHK
INTEL 8048/51/88 SOFTWARE & H/W ENGINEERS ASSEMBLERS, ALL AREAS		£14K
BUSINESS ANALYST ON ICL PROGRAMMING B/G PRODUCTION & FACTORY BENKS		to £15K
VAX VMS FORTRAN, MACRO EXCELLENT OPPORTUNITIES THROUGHOUT LONDON AREA		c. £12K
DEC PDP 11/70 ANALYST PROGS IN SURREY SOFTWARE HOUSE		to £15K
NETWORK SUPERVISOR, BANKING ENVIRONMENT, EXCELLENT BENEFITS, BASIC		£13K
ICL PROGRAMMERS & ANALYSTS PROGS. ALL LEVELS		£9-18K

WEST LONDON

ANALYST/PROGRAMMER c.£11,000

This international pharmaceutical company are currently developing vector new On-Line commercial systems on their large IBM mainframe. You can help if you have a strong COBOL/CICS, DL/1 background, preferably gained in a DOS/VSE environment. This is a gilt edged opportunity to grow with a quickly expanding department. Benefits include THREE salary reviews per year, relocation expenses where applicable and free family BUPA.

ADF — IMS DB/DC

ANALYST/PROGRAMMER/DESIGNERS up to £15,000

One of the world's fastest expanding consultancies urgently requires additional professional expertise to supplement their already vastly experienced teams. If you have had some exposure to ADF in an IMS DB/DC or any other related environment, and would like the chance to grow with this company, call me, SIMON KONING, now and I will discuss this unique opportunity with you.

DEVELOPMENT WORK

PROGRAMMERS PL/1S c.£10,500

City-based company using DEC and VAX require knowledgeable COBOL+, +2 Programmers who could also be experienced in systems support or technical support. As candidates will be judged on their relative merits and practical experience we have been asked to short list any suitable candidates. You will need a degree or degree equivalent, a responsible outlook and an ambitious and confident attitude. This company offers good benefits and a most pleasant and friendly working atmosphere.

ANALYST PROGRAMMER

INSURANCE To £13,000

A major insurance group require an additional member for their development team. We are looking for experience gained in a DOS/VSE, VSAM, CICS-COBOL environment and the confidence to grow with a rapidly expanding department. Our clients offer every opportunity for advancement and liaising together with a range of benefits commensurate with a major employer.

ANALYST PROGRAMMERS AND PROJECT LEADERS

To £20,000 PACKAGE

Due to a policy of carefully controlled growth, these clients require a number of additional members of staff this year. They have been extremely successful in designing and installing systems based on the IBM GBD range and require some RPG experience (any machine) together with a flexible, mature, and professional approach. Superb opportunities are offered, working with Blue-Chip customers.

FINANCIAL COMPANY

CICS TRAINING £10,000 +

This is not an idle promise FACT!! This well-known stockbroking company WILL train the right person in CICS if you have around two years' COBOL programming experience gained in a large IBM environment. Some exposure to On-Line systems would be an advantage but is not a pre-requisite. This is an ideal opportunity for someone working in a large batch environment, and would like to move into a more technical and demanding position.

HEALTHCARE SYSTEMS

PROGRAMMER c.£9,500

A developing company require a young and ambitious COBOL/BASIC programmer to complement an existing efficient team, based in the West End. Currently using DEC and VAX the candidates will need to be familiar with financial and payroll systems. A minimum of 18 months' experience is required. This is an exciting and useful area in which to work. Benefits include Life Assurance, Pension, Season Ticket Loan, etc. Please contact MARSHALL CLIGMAN at our London office.

OPPORTUNITIES IN PL/1

ALL LEVELS To £12,000

We are continuing to take in a number of vacancies for people with PL/1 experience at all levels. Our client base includes CONSULTANCIES, INSURANCE, BANKS, INVESTMENT and MANUFACTURING concerns based in the CITY, GREATER LONDON and all the HOME COUNTIES. If you need a change of scene contact TAROA immediately. MORTGAGE assistance is available in some cases.

MIDLANDS

GSD ANALYST/PROGRAMMER

OXFORD c.£10,000

A leading manufacturer in the light vehicle industry, is seeking a mature Analyst Programmer for their new installation, with experience of RPG II on an IBM 8344. Major developments are being undertaken in the area of manufacturing systems and we are looking for a sound Programmer with good analysis and communication skills. Relocation expenses will be considered.

ANALYST

COVENTRY c.£10,000

Our client is a leading Software House in the Midlands. Due to continued expansion they require to take on another support Analyst. You should be able to demonstrate good Analysis experience on integrated Mini computer systems with some experience of BASIC however limited. Prospects with this company are excellent.

SOFTWARE HOUSE

SUTTON COLDFIELD c.£9,000

A family business, this company is looking for an ambitious Programmer to join them. They are seeking a Programmer with DEC PDP 11 or DEC VAX experience, preferably with knowledge of RSTS/E, though this is not essential. You should be able to demonstrate a sound knowledge of BASIC + 2 and have the ability to take on analysis roles in the future.

PROGRAMMER

COVENTRY c £7,500 + Car

We are looking for several COBOL programmers with two years' + experience. You should come from either a manufacturing environment or a Software House and have experience of integrated Mini computer systems. The company has an overflowing order book, and several fringe benefits are offered in addition to the salary.

For a discussion outside of office hours, 'phone 0767 280748 or 01-995 3516. Message regarding Midlands-based positions can be left on 021-622 3636.

TCR

Targa Computer Recruitment

6 Liverpool Street London EC2M 7NH Telephone 01-283 9941 Telex 25851
Monaco House Bristol Street Birmingham B5 7AS Telephone 021-622 2045 Telex 334237

Programmer-Software Support
IBM4331/41 with DOS,SSX
Portsmouth Starting pay up to £10,889

We are one of the largest computer users in Europe and need to strengthen our computing capacity in the Portsmouth Area still further, because of the development of new customer services. In the circumstances, we require another Programmer to provide software support at our Portsmouth Computer Centre for Regional and Area computing on IBM 4331/41 hardware.

You will be working within a software group of about 12 people supporting a variety of systems e.g. DME (MONITOR/J) VME/B, Application Support. Your main responsibilities will be to get IBM DOS, SSX, MSA Support off the ground, and establish a rapport with Regional and Area customers aimed at fulfilling their IBM computing requirement.

To be considered, you will need GCE 'A' levels or equivalent and 18 months IBM programming experience involving DOS and SSX.

Find out more about this job by ringing Jackie Malin or Margaret Thompson on Portsmouth 750034 (Ansafone available outside office hours).

British Telecom
Data Processing Executive

Laboratory Staff
Holland

Airwork Ltd, are seeking applicants for vacancies on a new contract in Holland.

Data Processing Engineer required for the processing of test laboratory data involving computers and peripherals, routine printing and plotting of test results.

Candidates will be graduates in computer programming with operating experience in data processing applications.

Familiarity with computer and plotting hardware desirable.

Computer Operator required for the programming and up-dating of laboratory test computer.

Candidates will have at least three years' experience as a computer operator in both real-time and off-line environments. Knowledge of FORTRAN programming and experience in electronics desirable.

Attractive salaries and working conditions will apply. Please send a full C.V. to Company Personnel Manager, **Airwork Ltd., Bournemouth-Hurn Airport, Christchurch, Dorset BH23 6EB.**

(4792)

Airwork Limited 1979 1983

IMMEDIATE START!
SYSTEM 38 – PRG 111

PROGRAMMERS AND ANALYST PROGRAMMERS

Central London and Home counties

Phone Lynn Lawes or Heather Craddock at KPG 01-948 5922 or Lynn 01-543 4148 (Eves & W/ends)

KPG

(4842)

DATA PROCESSING – OFFICE AUTOMATION

Motorola is a leader in the distribution of data processing and office automation industry. We are currently expanding our sales of office automation equipment in Western Europe.

This new and fast expanding operation in the UK requires a

EUROPEAN LOGISTICS MANAGER

with a proven successful career and experience in data processing or office automation equipment.

POSITION OBJECTIVES

You will be required to establish
- A centralised European logistics facility for the Motorola Information Systems Group.
- Stock spares, assemblies and components for the parts support of national subsidiary field service inventory requirements.
- Determine and assist in the location and quantity of field service inventory carried by the national.
- Efficiently procure inventory in a European context in conjunction with U.S. facilities.

We are offering an attractive salary plus the use of a company car. Other benefits include life assurance, private health plan, pension scheme (all non-contributory), 20 days' annual holiday.

Send full curriculum vitae without delay to:

S. J. Sewerin
Motorola Information Systems Group
114/116 Thornton Road
Thornton Heath, Surrey

MOTOROLA
INFORMATION SYSTEMS GROUP

your appointments register

Programmers

NCR/IBM/COBOL — Insurance · Banking	to £15K	London · H. Counties · N. Eng.
COBOL/PL1/OS/CICS/IMS — Commercial	to £13K	H. Counties · Midlands · Manchester
PLZ/COBOL/MINIS — Commercial	to £12K	London
HONEYWELL — Systems Programming experience	to £12K	Middlesex/London
DATA GENERAL ECLIPSE — Cobol	to £11K	Leicestershire
SYSTEMS 34/36/38/RPG2 — Insurance/Commercial	to £12K	London/Home Counties
IBM — System exp.	to £16K	Essex
BASIC — Mini Computers	to £11K	London
IBM/UNIVAC/COBOL — On-line/Database	to £12K	Surrey
NCR 8200 — Financial	to £14K	SW LONDON

Analyst/Progs

PRIME CAD/CAM	to £11K	Home Counties/E. Anglia
IBM 34/38/4341	to £15K	London/Home Counties/North
ICL 1500/ME29/2903 — COBOL	to £12½K	Essex/Herts
IMAGE PROCESSING C/UNIX — Scientific Applications	to £12K	

Hardware/Support

APPLICATIONS ENGINEER — Peripherals Support/Microprocessor Systems	to £15K	London plus International Travel
CUSTOMER SUPPORT — Sealc	£10K	Hampshire
SUPPORT ENGINEER	to £15K	London/Europe/Amsterdam
EXPD. SOFTWARE TECH. AUTHORS — Datacomms/Operating Systems/Telephony/etc.	£ NEG.	Europe
PROJECT ENGINEER — Systems/DEC	to £11K	Beds/Manchester
SOFTWARE SUPPORT — Medical/Training/Technical	£NEG	Berkshire

Systems Analysts

IBM/ICL — Stock Control/Commodity Control	to £12K	London
CAD/CAM — Real time · Modelling	to £16K	Man/Essex/South West
IBM/BURROUGHS — Commercial Accountancy	to £15K	London/Surrey/Manchester
IBM/PL/1/DL/1 — Database Support	to £11K	Middx.
ICL/ME29 — Commercial Design	to £16K	Herts
IBM SYSTEM 34/38 MAAPICS	to £13K	Sussex

Software Engineers

CORAL/PASCAL/MASCOT/C — Communications	to £13K	Glos/Hants/Sussex/Midlands/Manchester
REAL TIME/ASSEMBLER — Microprocessor Design	to £13K	Suffolk Coast
MILITARY SYSTEMS/RADAR — Coral · Mascot	to £14K	Hants/Surrey/Essex/S. West
PDP/VAX/INTEL — Telecomms · ATE	to £13K	Derby/Surrey/London/Kent
COMMS/TELECOMS/MOD — Mini/Mainframe	to £14K	E. Anglia
HP3000/INTEL — CAD/CAM/ATE	to £12K	Home Counties
TERMINAL EMULATORS — C/Assembler	to £15K	London

Snr Appointments

PROJECT LEADER — Military Systems	to £16K	Berks/Hants
SALES EXECUTIVES — Micros · Minis Peripherals, etc	to £25K	UK & Overseas
CONSULTANT — Military/Defence	to £15K	Berks
SYSTEM PROGRAMMING — Digital/RSTS/E, BASIC	to £15K	Bucks
TEAM MANAGER — Computer Modelling/Fluid Flow	to £17K	S. London
ICL/PRE- AND POST-SALES SUPPORT	to £16K	Berks
SOFTWARE SECTION MANAGER — Pascal/C/Microprocessor	to £18K	Essex/Middlesex

You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice. Take the next step in your career with us!

telephone 01 549 9236

Sloangate
The Appointments Register

SLOANGATE LIMITED
[illegible]
171-177 [illegible]
Kingston-upon-Thames
Surrey KT2 [illegible]
Telex [illegible]

Technical Support Manager

to c.£14,000 + 2 lease cars + benefits

West Midlands (FULL RELOCATION)

A new Company has recently been established to provide a Parts and Equipment distribution service to the worldwide customer base of one of the UK's leading manufacturing Organisations. The Company will operate on an autonomous basis with its own IBM computer facility supporting an extensive telecommunications network, and will initiate its own systems development plan to cater for the needs of the business.

A Management Team is being recruited to provide the impetus to this new venture and an exciting and challenging future is anticipated.

TECHNICAL SUPPORT MANAGER

This important position calls for a strong technical knowledge of IBM MVS environments together with database and telecomms exposure (ideally CICS/TOTAL/ENVIRON 1). Duties will include controlling a technical team covering Databases, Personal Computing, Operating Systems, and Telecomms Networks, as well as planning future technical enhancements to the installation. Experience will have been gained in Systems Programming or Technical Support, but candidates will need the ability to combine technical knowledge with effective man-management skills. Initially there will be periodic travel to a Northern site, but the new Computer Centre will be located in an attractive area to the South East of Birmingham.

An excellent salary will be paid, enhanced by 2 leased cars under a Management Car Plan, and medical cover through BUPA. Comprehensive relocation assistance will be available to this delightful area with easy access to the countryside of Warwickshire and Worcestershire.

To apply, please contact the Advising Consultant, **Martin Stainthorpe, on 021-236 3781** (24 hour answering service) and submit a detailed c.v. to him at the Birmingham office of SCR.

(4781)

SCR
Specialist Computer Recruitment Ltd

Computer Operations
Senior Operations Analyst

This is your opportunity to join one of Britain's largest investment service organisations and to assist in the development of highly sophisticated computer operations.

With funds under management of some £1,700 million it is easy to understand the importance which we place on automated systems. In addition to the mainframe computers (two IBM 4341 MG 2) we have established telecommunications links to 20 remote locations plus microcomputers and text processing facilities.

Owing to the continued success of the Group, the D.P. department is expanding and we now have a vacancy for a **Senior Operations Analyst** who will report direct to the Operations Manager. The function of the job is the development of effective liaison with D.P. departments in all aspects of new systems and changes in current systems.

It is likely that the successful applicant will be in the 30/35 age range and will have had at least 2 years experience at management level in D.P. as well as having worked in a department running under DOS/VSE and CICS. A working knowledge of VSAM administration and SYSTEMS MANAGER is essential. Salary up to £12,500.

Benefits include company loan schemes, BUPA, non-contributory pension scheme and free life assurance, subsidised restaurant and a very active sports and social club.

Please write or telephone A M Dickinson, Personnel Officer, Save & Prosper Group Limited, Hexagon House, Western Road, Romford, Essex. Telephone: Romford 66966.

SAVE & PROSPER

DATA PROCESSING
Saudi Arabia

A division of a major US high-technology corporation, awarded a contract to provide an automated logistics capability and management information systems, has immediate requirements for the following personnel, for its Riyadh office:

SENIOR SYSTEMS ANALYSTS: c.£25,000-12 years' experience
SYSTEMS ANALYSTS: c.£20,000-8 years'
LEAD PROGRAMMERS: c.£18,000-8 years'
SENIOR PROGRAMMERS: c.£16,000-4 years'
PROGRAMMERS: c.£13,500+ -2 years' approximately
OPERATOR: c.£13,500-2-3 years' experience HP 3000 essential

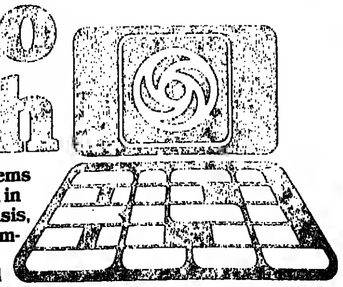
The project encompasses a logistics data processing centre linked with remote processing stations to support the function of supply, maintenance and project monitoring. In addition to getting the system operational and partaking in software development, you may be responsible for providing support and on-the-job training.

Exposure to military logistics systems development would be ideal especially if coupled with HP 3000 experience, COBOL essential and a relevant qualification would be desirable. Employment will be for a minimum period of 1 year on bachelor status. Excellent benefits include: free accommodation, subsistence allowance, generous leave with 3 home paid leaves per year, free medical care and a contract-completion bonus.

Please telephone 01-937 6586 now if you would like to be considered as final interviews will take place the last week of July/1st week in August. **Webb Whitley Associates Limited, International Recruitment Consultants, 45 Kensington High Street, London W8 5ED. Telex: 892586.**

Webb Whitley Associates Ltd.

Your gateway to the future with



BL Systems Limited is the UK's leading independent Systems Company and owner of the largest private microwave network in Europe. The Company operates on an entirely autonomous basis, selling and implementing its own products and services at competitive prices within a broad and prestigious Client base.

BLSL is the market leader within the sphere of Value Added Network Services (VANS), which include VIEWSHARE (a private Viewdata service), COMET (an electronic mail service), and Interactive Decision Support Systems Services.

The Company's plans to considerably increase it's share of the growing telecommunications market have continued to create new opportunities within BLSL, current requirements calling for

Communications Consultants
(Salaries to £15,000 + Bonus + Lease Car)

whose role within the BLSL Communications Services Group will be to provide specialist advice and guidance to a wide range of Clients, concentrating on the areas of networking/data communications.

Specifically, duties will encompass

* Project management of network implementations (including handover, documentation and user training)
* Professional consultancy studies of external Clients' networking requirements
* Providing technical support to the product, including sales/customer liaison

These demanding, yet extremely rewarding positions will suit mature, technically competent individuals, with a marked degree of business awareness, good powers of expression, an intense interest in the rapidly developing world of data communications (preferably having current experience of the design and implementation of total networking solutions), and a desire to remain directly involved in the technical aspects of networking/data communications.

Good knowledge of packet switching methods (e.g. PSS), integration, OSI standards, Government legislation regarding deregulation and experience in an IBM/DEC environment would also be highly desirable.

These positions are integral in BLSL's on-going strategy of expansion and offer a high degree of variety and challenge. Terms and conditions of employment are excellent and include a low cost leased car, bonus system and 25 days annual holiday, together with an attractive relocation package where applicable. The positions will be based at the BLSL Data Centre, situated in Redditch, a pleasant, low-cost housing area in North Worcestershire.

Suitably qualified candidates should forward a concise c.v. to **Ian Payne**, Supervising Consultant at the SCR Birmingham office as soon as possible. Initial interviews will be held at SCR Regional offices during the course of the next few weeks.

...leading the way

Technical, Sales & Management Appointments

SCR

Specialist Computer Recruitment Ltd

SOUTH: James House, 45 James Street, London W1M 5HS, 01-935 0671/499 0491

MIDLANDS & INTERNATIONAL: 35-37 Great Charles Street, Queensway, Birmingham B3 3JY, 021-236 3781

NORTH: International House, 84 Deansgate, Manchester M3 2ER, 061-833 9427

BELGIUM: Avenue Louise 327, Boite 4, 1050 Bruxelles, 010 322-649 7191/71

HOLLAND: Willemsparkweg 92, 1071 H M, Amsterdam, 010 3-79-798947

We are the major supplier of Seat Belts and Mirrors to the Motor Industry in the U.K. and have a significant export market both direct and through sister companies and licencees. At Chichester we employ c.800 people and are part of a major British public company.

As a result of reorganising and expanding our DP activities, which are based on an Amdahl V6 (12 mega) and a range of modern sophisticated software, we are looking to fill the following vacancies:

TECHNICAL SUPPORT ADVISOR

Reporting to the DP Manager you will be responsible for providing technical support for the operations and systems development section, as well as assisting users with micro's/mainframe interfaces. We are looking for 3-6 years' experience in COBOL, CICS, DLI, DOS/VSE3.

OPERATIONS SUPERVISOR

Again reporting to the DP Manager the job is accountable for Data Entry, Data Control, work schedules, operation documentation, operation standards, system acceptance testing, liaison with users on 'live systems'. Applicants should have some previous supervisory experience and knowledge of DOS/VSE3, JCL, IBM hardware and key to disk systems.

ANALYST PROGRAMMER

Working directly for the DP Manager this position will investigate, analyse, design and document programme test and implement systems and as required provide any necessary user training. Good business background with knowledge of COBOL/RPG II and extensive systems experience.

All these positions are based at Chichester with all the facilities of the South Coast close at hand. We can offer competitive salaries and a relocation package where appropriate.

Please apply in writing giving full details of age, experience and current salary to:

J. Burnett, Personnel Director,
Britax (Wingard) Limited, Chandler Road, Chichester,
West Sussex PO19 2UG.

(4816)

Britax

a BSG International company

Senior Managers
and ambitious
Systems Analyst/ Programmers

Join our team working in an exciting environment on the South Coast

Plessey Aerospace Limited, a member of Plessey plc, designs, develops, manufactures and supports a wide range of equipment for aerospace defence and industrial applications throughout the world.

The Computer Systems Department is responsible for the design, development and operation of both batch and transaction processing systems which have extensive applications within the manufacturing finance, commercial and engineering functions.

Mainly I.C.L. orientated, the computer installation includes a remote 2966 (D.M.E. under GEORGE III), two local ME 29 machines (under T.M.E.), and a local P.D.P. 11/70 running under RSX/11M.

Because of an increasing demand for new systems, the Company wishes to appoint a number of Senior Managers and Systems Analyst/Programmers to be responsible for identifying, specifying, programming or controlling the programming of a variety of business systems. These positions are at varying levels of seniority.

Applicants will ideally be qualified to degree level, or equivalent, and should have a minimum of 3/4 years' ICL COBOL programming and systems analysis experience within a manufacturing environment.

Your reward

Salary is fully negotiable and sufficiently flexible to accommodate the aspirations of highly motivated computer professionals. In addition we will offer a range of attractive benefits. Generous relocation assistance to this attractive part of the Hampshire coast will be given where appropriate.

Just write, or telephone, quoting reference CW/P/674 to:- J.E. Kelly, Senior Personnel Officer, Plessey Aerospace Limited, Abbey Works, Titchfield, Fareham, Hants. PO14 4QA. Telephone: Titchfield (0329) 43031, extension 2663.

These posts are open to both male and female candidates.

(4814)

PLESSEY aerospace

COMMUNICATIONS SALES NEW PRODUCT LAUNCH

£16,000 BASIC **£30,000 ON TARGET**

INITIAL GUARANTEE
PRESTIGE CAR

With an already established product range in the communications market including an X25 link for IBM users, protocol converters and a local area network, this American manufacturer has the ideal platform for this exciting and significant launch.

Quality has been the watchword for development of products and people and their uncompromising attitude in the attainment of high standards has resulted in staggering growth of almost 90% per annum.

This could be your opportunity to be in on the ground floor of a fascinating development in Voice/Data Communications. The product is unique in the U.K., and the success it enjoys will be limited only by the skills – commitment and experience of the successful applicant.

We do not ask that you should be unique, only that you should be a Professional Sales Executive with a strong track record in DP Sales and preferably a good appreciation of data communications.

I look forward to hearing from you . . . Stephen Personage, Ref: 1272.

AB EXECUTIVE (WEYBRIDGE) 0932 41321
5 Baker Street, Weybridge, Surrey KT13 8AE

DATA PROCESSING MANAGER

Salary in excess of £17,500 West London based

Our client, a leading International Company, urgently requires a Data Processing Manager, to control their expanding Computer Operations throughout Europe

This position is a challenging and responsible one, which requires someone who is capable of working under pressure, making important decisions and is self-motivated.

The successful applicant would ideally be aged over 30 years, and have worked in an environment ranging from mini computers through to a medium sized IBM mainframe installation.

The candidate must also be fluent in the latest modern technologies of computing including, Telecommunications, Networking Systems, IBM mainframes, Mini computers, Data Communications and future planning.

For the successful applicant a salary in excess of £17,500 (which is negotiable), a generous car allowance, plus the usual benefits that are offered from Large International Company's including European travel.

For further information, telephone Steven Knowles-Baker, or alternatively send a c.v. to the address below. All inquiries will be treated in the strictest of confidence.

nkb Associates Limited.

The Computer Specialists... Placing Computer Specialists

N.K.B. Associates Limited
159 Gloucester Road
London SW7 4TH
Telephone: 01-370 2012/3

(4798)

US LEASING

The World's largest and oldest established independent leasing company specialising in sales aid leasing programmes for the high technology office products market.

AREA SALES MANAGERS

London
TARGET EARNINGS £20K +
5 Figure Basic + Car & Benefits

The requirement is for proven sales professionals with excellent track records gained selling high tech office products. Knowledge of leasing is not important as full training will be given. More important is the fact that you can relate the PABX of our programmes to the needs of the OP market place. Our no ceiling incentive plan will enable you to earn a substantial income for above target performance with the benefit of real career development in the future. There will be vacancies in other areas in the near future.

Please send career details in total confidence to:

P.E. HOLD, ESQ
SALES & MARKETING DIRECTOR,
U.S. LEASING LIMITED,
314 REGENTS PARK ROAD,
LONDON N3 2JX.

(3184)

ECL is an established computer services company backed by the resources of the John Laing Group, a major British organisation with international interests. We are currently successfully marketing our turnkey products in a growing market and are now seeking Sales Executives and Sales Support Consultants with drive and determination to further our planned expansion. Experience of construction related applications would be an advantage.

SALES EXECUTIVES
LONDON & MANCHESTER

The successful candidates will be required to achieve personal sales objectives set by the Marketing Manager, and implement and control sales campaigns and budgets. This broad ranging role will ideally suit candidates, aged 25-35, who preferably have some sales experience in computer services.

SUPPORT CONSULTANTS for DEC SYSTEMS
LONDON & MANCHESTER

The role is likely to be of particular interest to DEC programmers who wish to move into a customer support environment. The ability and desire to react to technical business training plus good presentation and communication skills to deal confidently with users and prospective clients at all levels are essential.

A competitive basic salary (plus commission for Sales Executives) will be negotiated to attract the right candidates. Benefits include company car, 5 weeks' annual leave, pension scheme and free life assurance.

Please write with details of experience to date, or telephone for an application form, to:

D.C. Madden,
Personnel Manager,
John Laing Services Limited,
Page Street,
Mill Hill,
London NW7 2ER.
Tel: 01-906 5202.

ECL

(4798)

CONSULTANT

INSURANCE OR PROPERTY
c.£15K+

We are seeking a top flight consultant with experience in either of the above areas to help generate and support new business. Knowledge of WANG systems useful but not essential. First class career prospects.

ANALYSTS & SNR ANALYSTS

COMMERCIAL – ANY MACHINE
£11K-13K

Excellent opportunities are available for Analysts and Senior Analysts to work on the development of new systems in BUCKINGHAMSHIRE. Programming background useful but not essential.

Contact: MARILYN DAVIDSON or LESLEY THOMPSON on 01-836 6775

Computer Personnel International
30-32 Southampton Street, London WC2. 01-836 6775

DATA COMMUNICATIONS SUPPORT

CODEX, the data communication operation of Motorola supply systems to most of the leading companies throughout the world.

With the support of Motorola's research and development programmes CODEX has a record of technical advancement second to none.

We have experienced a rapid increase in our market in the past year. To enable us to maintain our growth programme we now require further technical support staff at our Croydon and Manchester offices.

Show us that you have the experience in network design and protocols and the ability to work in a sales environment and we will pay you an attractive salary, provide the use of a company car and the fringe benefits you would expect from a major company.

If you would like to tell us how your experience matches our requirements call David Borer on 01-689 2101 or send your curriculum vitae to S. J. Sewsrin, Secretary/PA to Managing Director, CODEX (UK) LTD, 114/116 Thornton Road, Thornton Heath, Surrey.

(4697)

MOTOROLA
INFORMATION SYSTEMS GROUP
CODEX (UK) LTD

your appointments register

Sales Executives/Managers

Herts — **£20,000 on target**
Computer bureau experience required, selling a wide range of mini and micro based solutions.

Nationwide — **£16,000 package**
To sell computer related equipment/electronics to industry, banks and scientific research establishments. Experience of micro processor base equipment or data communications particularly useful.

SW London — **£13,000+**
Selling technical software and engineering consultancy services.

Kent — **£13,000+**
Technical sales experience required, communications systems of particular value.

SE England — **£25,000 package**
C.O.M. experience of particular relevance, to sell hardware and associated software.

Middx. — **£30,000 on target**
Sales Manager to motivate and manage existing sales force. Should be knowledgeable about small computer systems with successful experience in selling them – preferably in turnkey packages.

Edinburgh/ Staines — **£23,000 on target**
Experienced in selling small (micro or mini) computers preferably as turnkey systems and preferably to small companies, professional offices or lone traders.

Nationwide — **£25,000 package**
Young expanding company with a unique market position to sell graphics and CAD/CAM equipment based London, Home Counties, Midlands and the West.

You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice.
Take the next step in your career with us!

telephone 01 549 9236

Sloangate The Appointments Register
SLOANGATE LIMITED
DOMINIC HOUSE
171-177 LONDON ROAD
KINGSTON-UPON-THAMES
SURREY KT2 6NA

SYSTEMS ANALYSTS – RETAIL

IBM 3081 with MVS using TSO/VSPC/CICS/TOTAL/MANTIS

Halfords have two vacancies in the Systems teams located in an impressive Head Office complex at Redditch.

Candidates must possess:–

- ★ 5-7 years DP experience with at least 3 years systems analysis including the leadership of a major project
- ★ Strong business systems skills, particularly in organising and analysing projects
- ★ Ability to communicate with users
- ★ CICS and/or database design experience highly desirable
- ★ 'A' levels

Salary up to £11,000 for suitably qualified analysts seeking a career move into a vigorous environment to play a part in major changes and developments.

The location offers a wide variety of rural and urban housing.

Relocation assistance; staff discounts; subsidised restaurant facilities.

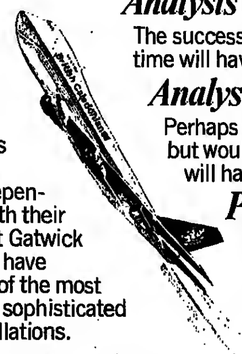
(4797)

Please write with full c.v. to: Mr. L.T. Richards, Staff Manager, Halfords Limited, Icknield Street Drive, Washford West, Redditch, Worcs. B98 0DE.

HALFORDS

Analysts/Analyst Programmers/Programmers

Join the high speed excitement of British Caledonian and watch your career climb sky high.



The Company

The Company is Britain's most successful independent airline. With their headquarters at Gatwick in Sussex, they have developed one of the most impressive and sophisticated computer installations.

The Career opportunity

The career opportunity presented here could be exceptional. British Caledonian expect all members of their Computer Group to progress, and in this exciting and technically advanced environment the opportunity presented is considerably better than average.

The Installation

Using Dual IBM 4341 mainframes plus significant other hardware, British Caledonian has developed a highly technically competent installation.

The Vacancies

All the vacancies are new ones and stem from the desire of senior management to see continued growth in the use of computing within the company.

Analysts (Ref. 123)

The successful applicants will have at least three years' experience and during that time will have developed at least one successful major system.

Analyst Programmers (Ref. 124)

Perhaps slightly less experience than above in terms of systems development, but would have played an important part in systems development and ideally will have a Cobol background in an IBM environment.

Programmers (Ref. 125)

At least eighteen months' experience of using Cobol in an IBM environment. Will feel technically sound and will be anxious soon to take the step up the ladder to Analyst/Programmer.

Systems Programmer (Ref. 126)

Good VM experience essential. Knowledge of DOS/VSE and DL/1 would be a significant advantage.

The Rewards

The rewards in terms of job satisfaction will be very special. Working for a "growing company" can add a new dimension to job interest. The rewards in salary terms are excellent and these, coupled with the benefits one would expect from one of the world's major airlines, offer a very exciting prospect.

The Recruitment Time Schedule

British Caledonian wish to fill the vacancies advertised quickly. Therefore, you are asked to send a curriculum vitae which will allow us to measure your experience against the positions offered. Interviews will be conducted during the next two weeks. Please apply, giving contactable telephone numbers, to A&A Consultants (Holding) Ltd, County House, 10 Little Portland Street, London W1N 5DF. Telephone 01-631 4184. Kindly quote appropriate Reference Number.

British Caledonian Airways

A&A

RPG II/III

IBM SYSTEM 38 To £12,500

W/END. Superb opportunity to join this highly professional finance organisation based in the heart of the West End. As a key member of a small team you will be responsible for development of Accounting and Insurance Systems. You will be given every opportunity to increase your analytical skills. Excellent working conditions, including air conditioned offices and free lunches. **REF G/2634**

RPG II/III £12,000

MIDDLESEX. Senior position for an experienced IBM System 34/RPG II Programmer/Analyst to play a leading role in a major conversion project, which will involve a lot of user contact and liaison with senior managers. Once the project is completed you will receive RPG III training and work solely on the IBM System 38. **REF G/2611**

IBM SYSTEM 34 £10,000

LONDON/HERTS BORDERS. 1 year's IBM System 34/RPG II experience is all that is required for this major group of companies. The successful candidate will be involved in many varied and challenging development applications, including training in analysis, and liaison with non D.P. users. You will be well rewarded in terms of salary and perks. **REF G/2635**

ANALYST/PROGRAMMER To £12,000

LONDON. Highly reputed firm of commodity brokers based in the City requires an RPG III Analyst/Programmer who will be a key member of a small on-line development team, who are embarking on a large financial project. If you seek a challenging position this could be an ideal career move for you. Perks include £5 per week L.V.s and interest free season ticket loan. **REF G/2590**

IBM PL/1 c. £9,500+Mort

CITY. Excellent opportunity to widen your experience with this major banking concern. If you can offer 12 months + IBM MVS or OS/VS1 experience with fluency in PL/1 programming language, they will offer you full training in Database techniques, and all aspects of systems design. A full banking package is offered which includes mortgage subsidy. **REF D/2631**

PL/1-TRAINING IN CICS £GOOD!!!

This highly successful Kent based PL/1 site is expanding and is currently seeking programmers with a minimum of 12 months PL/1 experience. The majority of work is of a development nature and will involve the successful applicant in much user-contact. The successful applicant will be given training in CICS and the opportunities to improve and utilise their skills. The company offers many financial benefits including low interest mortgage, bonuses, and non-contributory pension scheme.
REF D/2632

IBM OPPORTUNITIES

COBOL PROGRAMMER To £9,500

MIDDLESEX. Excellent opportunity for a programmer with 18 months + IBM COBOL, to gain on-line experience with this prestigious world-wide organisation in Middlesex. Current configuration is an IBM 4341 under OS/MVS, with IDMS coming in shortly. You will be an integral part of a development team working on financial and commercial on-line projects, using structured programming techniques, and benefits include discount on goods, car scheme and subsidised restaurant.
REF G/2440

ANALYST/PROGRAMMERS To £11,000+Relocation

ESSEX. Due to continued company expansion, this leading financial concern are seeking to recruit additional IBM Analyst/Programmers to join their D.P. Department that is currently involved in significant development projects. The company house an IBM 4341 running DOS/VSE & CICS. Working knowledge of VSAM would be an asset. The ideal applicants will be highly motivated and prepared to take up a challenge. The company offer excellent working conditions which includes non-contributory pension scheme, BUPA, Active sports and social club. **REF G/2103**

IBM PROGRAMMER £10,000

CITY. An international organisation is currently seeking an IBM COBOL programmer with a minimum of 2 years' experience. The company retain an IBM 4341 running under MVS and CMS. You will be solely involved with on-line development work, and CICS experience would be useful. You will enjoy a variety of benefits including flexitime, L.V.s and S.T.L. **REF G/2435**

PROGRAMMER/ANALYST £10,500

LONDON. An exciting opportunity for an IBM COBOL Programmer to become immediately involved in the development of an on-line/database commercial project. You will be working on an IBM 4341 running under DOS/VSE, CICS & DL/1 expertise is an advantage although training can be provided where necessary. Package includes non-contributory pension scheme, free life insurance, substantial twice yearly bonus, and active sports and social club. **REF. G/2365**

OTHERS

HEWLETT PACKARD – SENIOR c. £12,000 + RELOCATION

An excellent opportunity has arisen for a Hewlett Packard programmer to move into analysis. This high technology company based in Bucks, seek ambitious persons with experience of H.P. IMAGE, VIEW and/or structured systems analysis techniques. Many new development projects are anticipated for the future, following the installation of a new network of HP3000 machines. Applications include Sales Order Processing, Distribution and Export. The company offers an attractive salary and package which will include relocation. **REF A/2561**

HEWLETT PACKARD-COBOL £10,000

Can you offer in excess of 6 months commercial HP3000 COBOL expertise? My London based client can offer you the chance to become extensively involved in on-line development projects of an extremely challenging nature. You will have much user contact and will soon be completing your own analysis duties. The opportunity also exists for you to learn a new language. **REF A/2531**

HONEYWELL – ALL LEVELS To £10,500

My Essex based client is seeking Honeywell mainframe COBOL expertise at all levels from Programmer to Senior Analyst/Programmer. 18 months + relevant experience is required hopefully with DM4 and/or TDS. The more senior applicants will immediately be involved in challenging database development projects, including completing systems design work. The programmers will be encouraged to move into analysis work by writing their own specifications for interesting on-line development projects both of a commercial and financial nature. Benefits include 5 weeks' holiday; subsidised restaurant; company car; non-contributory pension scheme and social club. **REF A/1712**

HONEYWELL MINI-COBOL/SCREENWRITE To £10,000

This London based Honeywell L6 site would like to hear from L6 Programmers with in excess of 12 months COBOL and/or Screenwrite expertise who wish to further their career in a financial/commercial environment. You will play an integral part in a team developing new real-time systems for the company's use. There will be much user contact and the chance to progress into analysis. For this and many other L6 positions call now quoting; **REF A/2568**

DEC/PDP-BASIC + 2 c. £9,500

This prestigious multi-national company utilises the latest technology to administer its manufacturing and commercial projects. To assist in the development of highly sophisticated systems an additional Programmer/Analyst is to be appointed. Ideal candidates should have a minimum of 12 months' DEC/PDP BASIC + (2) exp, hopefully but not essentially with RSTS/E. You will also be trained on another mainframe. Company is based on the London/Middlesex borders. **REF A/1249**

COBOL – RETRAIN LATEST EQUIPMENT To £11,000

Excellent opportunity for COBOL Programmers to retrain onto the latest Honeywell kit. Due to expansion, my Surrey based clients seek applicants with upwards of 2 years COBOL experience hopefully with knowledge of structured programming. Preference will be given to those with on-line and/or database backgrounds. They are currently embarking on a series of financial development projects using the most recent programming techniques. There is a degree of analysis involved and the successful applicants will have regular user liaison. Company benefits include a non-contributory pension scheme, L.V.s and 5 weeks' holiday. **REF A/2359**

DEC – RETRAIN TO IBM! c. £9,000

Exciting opportunity for a DEC/PDP BASIC + 2 programmers to begin retraining almost immediately on a new IBM 4331 using CICS. You will be required to complete some maintenance on the DEC, whilst developing projects on the IBM. Applications include Order Processing, Management Information, and Ledgers. London-based, my clients offer a good career path, excellent salary and extensive training.
REF A/2369

BURROUGHS – COBOL To £12,000

A semi management position exists for a D.P. professional with in excess of 3 years solid BURROUGHS COBOL expertise, preferably with having done some systems work. You will be reporting directly to the Financial Director and will take responsibility for a large area of the department, running a sophisticated Accounting System. Liaison with users will play a large part of the job as will management liaison. A good salary is offered and benefits include free life assurance, BUPA, lunches and excellent working conditions. **REF A/1010**

ANALYST/PROGRAMMER c. £9,500

BERKS. Superb opportunity for an experienced and enthusiastic programming professional with three years ICL COBOL, including one year as an Analyst/Programmer to take up a key position within this major manufacturing company. The successful candidate will be joining a busy development team, working directly with user groups to design, write and implement a range of commercial systems. The work will be based on ICL 2956 and ME29 hardware. Good prospects to move into analysis, and to increase technical expertise. Company benefits include 5 weeks holiday, free life assurance and pension scheme. **REF D/2633**

Z80 £FIVE FIGURES!!!

Highly successful West End based bureau concern is currently seeking experienced Data Processing professionals with considerable experience of ASSEMBLER on Z80/6502 micro hardware. The successful applicant will be developing a range of financial, banking, and commercial applications. This is an outstanding opportunity that offers a full benefit package and very high salary for the right person.
REF D/2348

MAJOR ICL DEVELOPMENTS c. £9,500 + Mort.

SURREY. This Surrey based insurance concern currently in the process of developing new systems are offering interesting work to programmers and analyst/programmers who can offer in excess of 18 months' ICL COBOL experience. Experience of VME would be desirable, and will be rewarded accordingly. Full training is offered in database techniques, TP systems, and aspects of systems design. This is an excellent opportunity to gain varied and practical experience while pursuing a worthwhile career. Company benefits include 4 weeks' holiday, subsidised restaurant and pension scheme. **REF D/1739**

DATAPOINT OR TEXAS INSTRUMENT £9-13,000

Two outstanding opportunities with London and Middlesex based software houses. One requirement is for a Datapoint programmer with Databus and Datashare experience to develop commercial and communications systems. The other for a COBOL Analyst/Programmer with Texas Instruments or other mini COBOL experience. Full company benefit package and good career prospects for the right people. **REF D/2615/4**

SYSTEMS ANALYST £11,000

ESSEX. Large progressive company based in Essex housing ICL 2956 is seeking an experienced analyst with one or more years' formal analysis experience and should be able to demonstrate skills in either the financial, commercial or technical sectors. VME exposure would be preferred but is not essential. The successful candidate will also have the ability to liaise with users at all levels. Ideal opportunity to join a challenging, dynamic but friendly team. **REF D/2636**

FORTRAN – PDP £NEG

Can you offer a minimum of 2 years' FORTRAN expertise, on DEC/PDP equipment? You will become involved in the development of engineering and scientific projects, using graphics. Extensive training is offered in RSX-11M, CP/M, UNIX and MACRO 11 if required. Kent based, my client is seeking Programmer/Analysts with the desire to move into systems work in the near future. Salary will more than commensurate with your experience and other benefits include Luncheon Club, sports/social facilities. **REF D/1159**

(4760)

THE INTELLIGENT CHOICE

Brushfield House, 12 Brushfield Street
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Telephone: 01-247 3356 (24 Hours)

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DISTRIBUTED MANAGEMENT SYSTEMS LIMITED
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We are a small systems house based in Feniscowles, Lancashire.

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and

PROJECT MANAGERS

who are capable of matching our company's work rate and growth.

Experience in DEC RSTS/E and VMS Systems would be advantageous.

Salaries are negotiable from £8,000 to £15,000 for these posts.

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c.£8,000

Our client, a leading systems supplier requires a Technical Assistant in Manchester. Ideally a graduate with knowledge of M Basic, CP/M and MS-DOS, your duties will be varied and stimulating. Excellent career opportunity in rapidly expanding company.
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AB EXECUTIVE (KINGSTON) LTD.

(4763)

UNIVERSITY OF CANTERBURY
New Zealand

PROGRAMMER-ANALYST
COMPUTER CENTRE

Applications are invited for the above position in the University's Computer Centre. Applicants should possess at least a good Honours degree in Computing or a related discipline. Experience with any of Burroughs Large Systems, PRIME computers and applications packages would be an added advantage. The duties will involve maintenance of applications packages on B6930 and P750 equipment and PRIME systems software work. A large part of the job will involve interaction with users. There will be some participation in a variety of development projects.

The salary for Assistant Programmer-Analysts is on a scale from NZ$16,123 to $18,732 and for Programmer-Analysts is on a scale from NZ$21,880 to $25,[illegible] per annum.

Further particulars and Conditions of Appointment may be obtained from the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

Applications close with the Registrar, University of Canterbury, Private Bag, Christchurch, New Zealand, on 26 August 1983.

(4801)

Small expanding medical software company required,

SPECIAL PROJECT PROGRAMMER

with expert knowledge of Macro-11 and RSX-11M. Good prospects and change of international travel.
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We need to recruit the following personnel to expand our existing team.

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Ideally the applicants will have experience in selling to large organisations. We will, however, also consider applications from graduates who feel that they would like to enter this challenging and exciting career. Necessary training will be given.

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An experienced PASCAL programmer who will be capable of rapidly accepting responsibility for a major project. The system currently runs on a microcomputer network and is written in UCSD Pascal. Planned developments include transferring and upgrading the system on to a suitable Mini computer.

We also have vacancies for programmers with experience in using popular packages (DBase II, MicroModeller, etc.) on microcomputers.

Please send full details to the following address:
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London W4 5RG

COMPUTER PROGRAMMER

An opportunity exists for an experienced RPG 11 programmer to become involved in the future development of data processing within the M.Y. Group of companies.
We are currently operating two IBM System 34's which provide a service for many of the companies within the Group – three of which are on-line.
Suitable candidates must be able to get on with people in a busy department. The successful applicant will be involved in many varied and challenging applications and be rewarded with an excellent salary reflecting the importance placed on this appointment.

M.Y

Please write or telephone:
Mark Paxton,
M.Y. Dart p.l.c.
Moxon Street,
Barnet, Herts, EN5 5TR
Telephone: 01 440 8441

SOFTWARE HOUSE DEVELOPMENT OPPORTUNITIES

£8,000 to £16,000 CENTRAL LONDON & HOLLAND

One of the UK's largest and most prestigious software houses has a requirement for additional development personnel resulting from its continued sales success. These opportunities are for good technical staff of various levels of skill to work in a development capacity on a variety of large commercial projects.

Our client offers the following major advantages to DP Professionals considering a career move at the present time:-

- real career progression within one company at both technical and a managerial level.
- Involvement on meaningful development projects of critical importance to client companies.
- A stimulating and professional environment with excellent training in up-to-date methodologies.
- A wide variety of commercial applications primarily with a real-time or on-line bias.
- Financial rewards throughout the company which are excellent and with a benefits package in line with the best in the software house industry.

PROGRAMMING MANAGERS to £16,000
Based in Central London you will have successfully managed large programming teams, developing commercial applications using COBOL. You will have a real sense of urgency about your work with the ability to set and meet tight deadlines. Your experience will include modern techniques, such as Structured Programming methodology, and have produced work of a good quality.
Considerable opportunities exist for both technical and personal career progression.

DATABASE DESIGNER to £15,000
An additional Database Designer is required for projects based in Central London. You will possess good technical skills in addition to practical database design experience. You will possess knowledge of at least two different Codasyl Database Management Systems, possibly including the HONEYWELL IDS System.
Initially you will work as a member of a team on a major project. However, for suitable applicants with the proper potential there is the opportunity to progress to the level of Database Consultant.

COBOL PROGRAMMERS to £10,500
Several additional COBOL Programmers at various levels are required for major on-line development projects. In addition to good COBOL skills you will have had exposure to on-line working either as a development aid or in an applications environment. You will be used to working as a member of a programming team in a formal environment utilising good programming standards.
All Programmers will function in a development capacity utilising a range of the latest hardware and processing techniques.

Several opportunities also exist in Holland for COBOL Programmers. In addition to the normal rewards, a generous overseas allowance is paid. The environment will include other expatriate English speaking staff, thereby making the personal transition easier.

MANUFACTURING PACKAGE SUPPORT c £15,000
An opportunity exists for an applications specialist with considerable exposure to manufacturing systems to support production and manufacturing packages. The position is London based but travel will be required to customers sites as necessary.
The successful applicant will have several years relevant experience which should include at least some of the following:-
- Bill of Materials
- Manufacturing/Shop Floor Control
- Materials Requirement Planning
- Inventory Control and Costing

In addition to implementation work you will also carry out sales support. Clearly any package experience in an installation and support role would be considered highly advantageous but for a good Analyst with the correct experience this is not essential.

RESPOND NOW
Telephone our Advising Consultant LEN CRAY on 01 439 8985 during office hours or send your C.V. to him at the address below. Alternatively telephone him on 0484 21492 during evenings and weekends.

(4754)

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Operations Support for a Major Financial Institution with 6 x IBM 3081s

Our client, a leading financial institution with very extensive hardware resources, is constantly making use of all the latest software/development aids and seeks to employ six qualified personnel in the area of Operations Support.

Successful candidates will join a team of operations support specialists based at our client's data centre in London. They will be primarily responsible for installation of applications, systems software, new releases, etc., for the writing of operations procedures and JCL and for the evaluation of new products.

If the work sounds attractive, then consider the following criteria to see whether you are someone who should apply: –

- At least 4 to 5 years experience of working in operations and/or operations support at a large IBM installation (370/, 303X or 308X series machines)
- A good understanding of IBM JCL and utility software
- A thorough knowledge of the MVS operating system together with JES2 and/or JES3
- Preferably be conversant with IMS, MTO/recoveries and use of TSO
- Aged 23 to 35'ish

Now you can see that you are a perfect or almost perfect match, consider the other attractions: –

- A salary ranging from £7,700 to £11,450 including London weighting allowance
- Paid overtime when undertaken
- A non-contributory pension scheme
- Profit sharing and annual bonus schemes
- After a qualifying period, the facility of a low interest mortgage, low interest personal loans and an interest free season ticket loan
- Excellent subsidised restaurant facilities
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- A very secure environment
- A realistic career path

The vacancies must be filled as quickly as possible so please respond at the earliest opportunity.

ACR **Allimand Computer Resources Ltd**
15/17 City Road, London EC1Y 1AA. Telephone: 01-638 6411 or 01-920 0801 (24 hr)

Please send your Curriculum Vitae or telephone Lynn Roylance for an application form

(4800)

DoE Lic. No. SE 5583

ANALYSTS/ PROGRAMMERS £8,000~£13,000

Our client, an enlightened people minded organisation, based in a highly attractive part of the West of Scotland, is looking for Analysts/Programmers who can fit into a team environment and who have a lot to offer.

You should have 2–3 years experience in the Analysis and Design of either Commercial or Manufacturing Related Systems, allied to good programming skills. Experience of BASIC + 2, RSTS, VAX, VMS, COBOL and BASIC would be advantageous as would a knowledge of database management. Full training will be given in languages and hardware as required.

Our client's philosophy is one of flexibility, and your personal skills and experience will be tuned into the sector that suits you best.

Above all, to succeed with our client, you've got to be career minded, positive and have the ability to make an immediate and positive contribution to their overall success.

You'll become an important member of a truly professional team, enjoying a top flight salary, excellent benefits, and the prospect of working on varied and challenging projects.

The breadth of experience to be gained with our client can only enhance your value as a professional, and develop your career for the future.

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The Manager,
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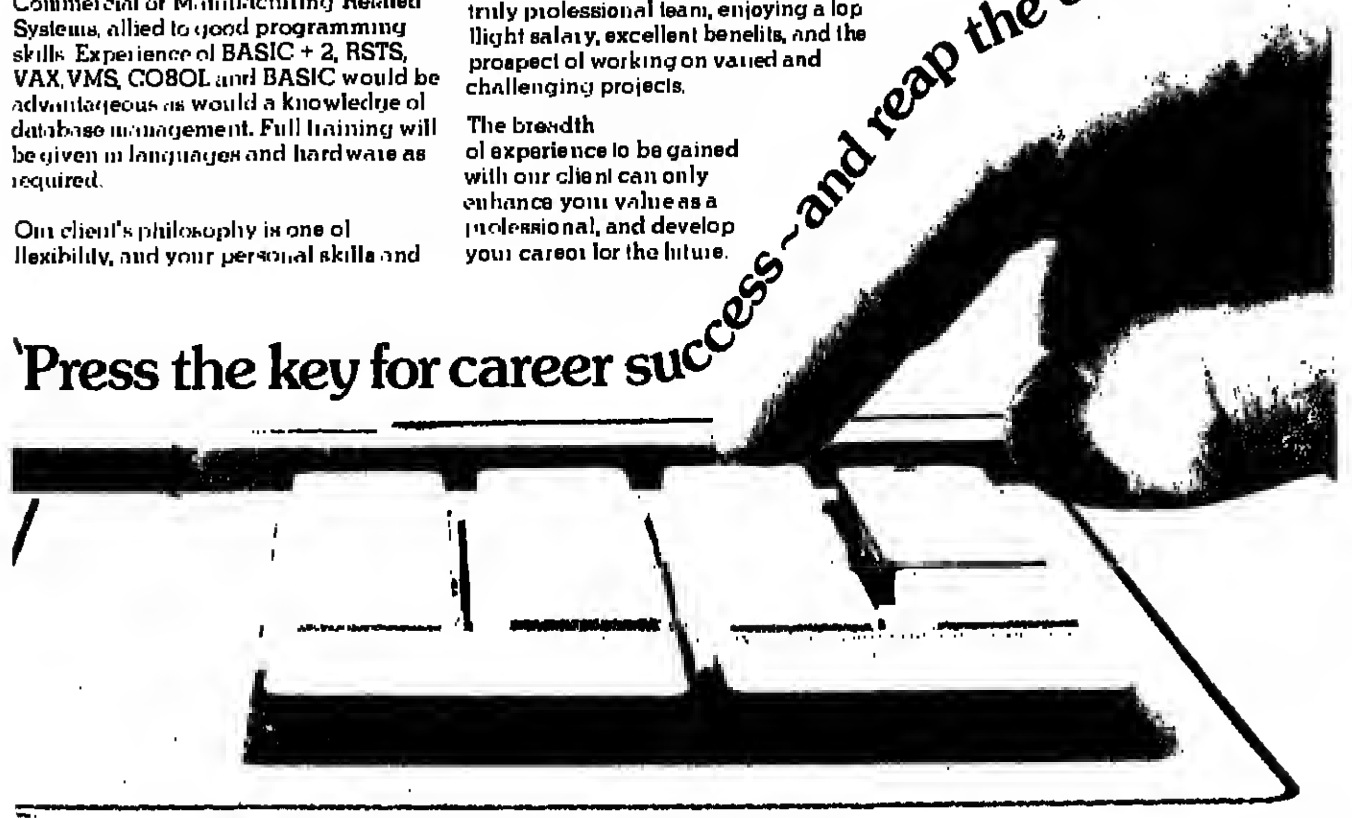
Letters from individuals will be opened, acknowledged and forwarded to our client. Please list in a covering letter companies to which your application should be sent. Open to male and female applicants.

'Press the key for career success ~ and reap the benefits'



Computer Service
SYSTEMS DESIGNER
Up to £14,000

We are one of the leading local authorities in the introduction of Information Systems with an active professional department where high standards and training are key priorities.

We operate an IBM 4341 with DOS-VSE, CICS and COBOL. An IBM 3083E is planned for 1984. Personal computing facilities are increasingly in use.

The majority of our work is new development, encompassing a wide variety of challenging systems, including finance, housing, libraries, planning and law.

We are currently seeking a Systems Designer for one of our three development teams. Reporting to the Project Manager, you will be involved in all aspects of project development including analysis and design, technical supervision and reviews, and implementation and documentation, using BIS Structured Methodology.

You should have a minimum of 5 years in Data Processing, preferably in an IBM environment, with at least 3 years' COBOL and some analysis experience. You should be able to communicate with both technical and user staff, and supervisory experience would be an advantage. A local authority background, while useful, is not essential.

We offer a competitive salary, 28 days' leave, interest-free season ticket loan after qualifying period, subsidised restaurant, flexible working hours and excellent training facilities. We are conveniently located in modern air conditioned offices close to Kensington High Street.

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The Royal Borough of KENSINGTON AND CHELSEA

Application forms quoting Ref. CW/346 from the Personnel Service, The Town Hall, Hornton Street, London W8 7NX. Tel: 01-937 8562 (24-hour answering service). Closing date for applications 8th August, 1983.

Applications are welcome from suitable qualified disabled persons.

(4699)

Systems Project Leader

Location: Rural, to the south of London

Salary: Circa £16,000 per annum, plus outstanding benefits

Our client, a major IBM user, wishes to fill the important position of Systems Project Leader in their growing Management Services Group. They are looking for someone with good all round systems development experience. Someone who has worked in a manufacturing or an engineering development area would be a particularly attractive candidate. However, more important is the ability to cope with both systems and people in a pressurised environment.

You will probably be in the age range of 28 to 35, and have a successful track record in systems development stretching over a period of at least seven years. You will believe that you can contribute significantly to an expanding systems group and will enjoy the rewards this brings both in financial and personal terms. Although you will be joining an established team, you will be given every opportunity to make a major contribution to the continued expansion of Management Services within our client's company.

Our client is probably the leader in their field. They have achieved this by offering services that are second to none. Computing has played a major part in achieving this high standard! Their expectations are high and they are demanding employers, but the career opportunity presented is much better than average and will certainly excite someone "on the way up".

If you are anxious to develop your career significantly then send your curriculum vitae to A&A Consultants (Holding) Ltd, County House, 10 Little Portland Street, London W1N 5DF. Telephone 01-631 4184. Please quote Ref. No. 301.

A&A

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Require self-motivated sales people in the Notts, Derby and West Midlands regions. The positions would require selling nationally known products into existing accounts and the penetration of new accounts.

It is unlikely that applicants below the age of 25 would have the necessary experience. Ideally candidates would have three years' experience in this or a related industry.

Remuneration would be by way of an attractive basic salary plus commission.

A company car and other benefits would apply commensurate with a large organisation.

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SOFTWARE ENGINEERS
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£9,000 to £14,500 + Profit share

Syntek is a technical software house specialising in telecommunications, automation and real-time computing. We wish to recruit additional software engineers to work in these areas.

Applicants should have an honours degree and at least two years' experience in fields such as microcomputers, communication systems, and languages such as Coral and Pascal. Syntek is an informal company which produces work of a high technical standard. Staff joining will have the opportunity to develop specialist technical skills and work on a variety of assignments in a stimulating environment. Please send a full cv to Angela Smith at

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Tel: 01-836 7466

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A Division of TRIAD Computing Systems Limited based in Guildford, Surrey needs talented and adaptable programmers to work on:

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We are looking for people with high ambitions and offer rapid progress, on merit, to positions of responsibility in systems design and project management.

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TRIAD Computing Systems Limited

Write to: Alistair Fulton, Systems ● Applications ● Software, TRIAD Computing Systems Limited, 108 Woodbridge Road, Guildford, Surrey GU1 4PY. Telephone: 0483 37976

IBM ANALYST/PROGRAMMER
(NEW INSTALLATION)

CITY c. £13,000

Our client, a prestigious financial management organisation who currently utilises the service of a bureau, now wishes to recruit their own in-house COBOL Analyst/Programmer who has around 4 years' experience, of which 2 years has been spent in Systems Design, writing interactive applications, liaising with users, and using IBM DATA BASE TECHNIQUES.

Your initial task would involve working with the service team on completing their current financial system, which would eventually be moved in-house to run on their IBM 4341 using CMS/VM, and from then on, design, develop and maintain other financial systems as required.

As well as a proven technical background, you must have the ability to produce VERY HIGH STANDARDS OF DOCUMENTATION.

The candidate who feels qualified for this position would eventually become the key figure in the installation.

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(3692)

Lloyd Chapman Associates
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(4783)

RPG II PROGRAMMER

required for a three month temporary assignment. Applicants should have practical experience of work on IBM GSD equipment. Employment will be considered on whole or part-day basis.

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Diamond Shamrock UK Limited
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Manchester M30 0BH
Telephone: 061-789 7300

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Call me, Vincent Melling NOW on 01-549 8441 for further details.

(4711)

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Systems Programmer

Nottingham Salary £8,108–£11,295 p.a.

East Midlands Electricity operate a 16 megabyte 3083B and a 12 megabyte 3033N IBM Computer using the MVS/SP 1.3 Operating System. Other software includes CICS for teleprocessing, TSO for program development and personal computing, and the IMS/DL1 database management system. A network of over 350 terminals is supported.

The successful applicant will be required to work in a small team specialising in the implementation and tuning of manufacturers' software and the design and development of utility routines and programs. Sound and proven ability in Assembler and/or COBOL languages is required. Some knowledge of IBM Operating Systems and Utility software would be an advantage. Initial salary will be based on experience and will be supported by attractive fringe benefits.

Application forms, obtainable from the Personnel Manager, E.M.E.B., PO Box 4, North P.D.O., 398 Coppice Road, Arnold, Nottingham NG5 7HX should be returned by 4th August 1983 quoting vacancy number EM/54/83.

(4678)

WORKELECTRIC E

IBM Systems Programmers
£6,000-£15,000

Our Client is based in one of the most picturesque parts of rural Cheshire.

The Company is embarking on a major expansion of their Data Processing function, and require additional systems programmers with a sound technical background, preferably in an IBM MVS environment.

Positions available range from trainee to management level in the company's technical support section.

Candidates applying for the senior position will have a minimum of six years' systems programming experience with a proven track record of man management, essentially in an IBM MVS environment.

THE INSTALLATION
IBM 3031/3083 MVS/SP with 250 terminals online

SOFTWARE:
SMP4, CICS, ACF, VTAM/NCP, TOTAL DATABASE

LANGUAGES:
PL/1, ASSEMBLER, APL

Preference will be given to candidates with relevant MVS experience, although this should not deter systems programmers with other operating systems experience from applying, including technical operations and commercial programming personnel.

BENEFITS:
Generous relocation
Paid overtime
Possible short-term house lease scheme
Full sports facilities including squash courts

In the first instance contact Derek Crummack on 061-941 4319 (24-hour service)

(4812)

HEWITT MANAGEMENT SELECTION
2nd Floor, 6 Church Street
Altrincham, Cheshire

Duncan Bransom Software Systems Ltd. will be continuing their expansion throughout 1983 and are now looking for

COBOL PROGRAMMERS
£9,000 – £1,2000

The company, formed in 1974, has dedicated itself to the production of applications software of the highest quality, mainly for IBM mainframes.

To cope with the steady demand for its services and the growth planned for 1983 there are now vacancies for at least two COBOL Programmers.

Successful applicants will have had a minimum of two years COBOL experience on IBM machines. Knowledge of CICS, DL1, COPICS or ADABAS would be an advantage but this is not essential.

If you are looking to join a small dynamic organisation where, through your ability and hard work, you seek to progress to the top, this could be the opportunity for you.

You should be prepared to work either in our offices in the City or on the premises of our clients, most of whom are located in the London area.

A pleasant, stable working environment is maintained where people can develop their professional skills whilst earning good money. In addition to the salary, which is dependent on experience, there are a range of benefits including paid overtime and a profit sharing scheme.

Please contact **PHILIP TAYLOR on 01-253 2196** to discuss a possible appointment, or write sending brief details of your career to date. Under no circumstances will your present employer be approached without first obtaining your permission in writing.

A company you can grow with

Duncan Bransom Software Systems Limited

Duncan Bransom Software Systems Ltd, Wilso House, 82/88 City Road, London EC1Y 2BJ. Telephone 01-253 2196

SENIOR SYSTEMS ANALYST — **HERTS** — **to £15,000**
Our client, a leading company in the retail industry are seeking someone with a proven record of systems implementation and large scale project involvement, preferably gained within an IBM DOS/VSE environment. Excellent company benefits apply. Ref: A673

RPG 3 ANALYST/PROGRAMMER — **MIDDX** — **£14,000**
The ideal applicant will have a minimum of 12 months RPG 3 experience to work on a variety of projects within the Software House of a major commercial organisation. RELOCATION will be paid where applicable. Excellent salary & benefits apply. Ref: B669

SENIOR ANALYST — **W. MIDDX** — **c. £14,000**
A major commercial organisation seek someone with proven supervisory skills & various successful projects to credit to lead their team on major new development work. Sound IBM experience is essential preferably with CICS. A working knowledge of COPICS is also desirable. Ref: B760

PROGRAMMERS, ANALYST/PROGRAMMERS — **LONDON** — **to £13,000**
A number of our clients require people with a minimum of 2 years COBOL to help develop a variety of real-time applications. *Applicants with backgrounds of general commercial, insurance & financial expertise would be considered for these numerous* ICL positions. A knowledge of IDMS, TPS or TPMS would be advantageous though training will be given. MORTGAGE, LIFE ASSURANCE, SEASON-TICKET LOANS, BUPA and BONUSES are just some of the fringe benefits offered. Ref: A/GEN

SENIOR ANALYST/PROGRAMMER — **SURREY** — **£13,000**
A major international manufacturing organisation require someone with 4 years IBM COBOL experience to take responsibility for the design & implementation of a major distribution system for the company's European network. The successful applicant will have good communicative skills & the initiative to progress into senior management. EXCELLENT BENEFITS & CAREER PROSPECTS ARE OFFERED. Ref: A596

IBM PROGRAMMERS — **W. LONDON/MIDDX** — **c. £11,500**
A minimum of 2 years COBOL or RPG 2 is required to work on major new developments for this leading manufacturing organisation. Knowledge of CICS/DLI would be advantageous. Excellent salary & structured career paths are guaranteed. Ref: B671

COBOL PROGRAMMERS — **SURREY** — **to £11,000**
This international financial organisation requires people with 2 years COBOL experience & some knowledge of on-line & database techniques for their expanding HONEYWELL installation. Successful applicants will be assigned to the development of large investment/purchasing systems. The company offers a well-structured career path along with excellent working conditions. Ref: A516

ANALYST/PROG (Any Mainframe) — **LONDON** — **£10,500**
A major transportation organisation is seeking to recruit someone with 2 years COBOL programming & 1 years analysis experience. The successful applicant will be required to develop new on-line commercial systems on a UNIVAC 1100 mainframe. COMPANY BENEFITS INCLUDE BUPA & FREE LIFE ASSURANCE. Ref: A747

DATABUS PROGRAMMER — **HERTS** — **£8,000 + benefits**
A leading manufacturing company require someone with 18 months DATABUS experience to join their dynamic team. The successful applicant will be required to develop new on-line commercial systems & will also gain exposure to IBM 4300 hardware & software facilities. EXCELLENT PROMOTION PROSPECTS. Ref: A436

IBM PROGRAMMERS to PROJECT LEADERS — **HERTS/LONDON** — **to £19,000**
Major commercial company requires Systems & Programming Project Leaders to meet their expanding development commitments. Sound technical IBM mainframe knowledge, plus ability to plan & control work for small groups of professionals essential. Applicants must have a minimum of 3-4 years COBOL and/or BAL with a preferred working knowledge of database. Ref: A768

PROJECT MANAGER — **£16,000 + CAR + BONUS**
Well known Software House, situated in Middx, need a Project Manager with sound commercial systems & project management experience using mainframes, minis or micros. The applicant will ideally have had exposure to a software house environment. Ref: A749

PROGRAMMERS & ANALYSTS — **to £16,000 + benefits**
A large number of our clients situated in London, Home/Southern Counties need Programmers & Analysts to Project Leader level with PL1 or COBOL or BAL experience to develop realtime commercial systems, including Banking & Insurance, using CICS & DLI. Knowledge of CICS or SHADOW an advantage. Benefits include BONUS schemes, MORTGAGE & insurance facilities. Ref. A714

PROJECT LEADERS — **LONDON** — **c. £15,000 + benefits**
Major financial organisation requires Project Leaders with a sound experience in the design & implementation of large scale database systems, with a working knowledge of either command level CICS or IDMS, preferably in an MVS environment. A knowledge of BAL would be useful, but not essential. Excellent career prospects & benefits apply to these key positions. Ref: B753

ANALYST/PROGRAMMERS — **LONDON** — **£12,000 + benefits**
This large financial company needs Analyst/Programmers with a minimum of 2 years IBM COBOL, preferably gained in a database environment using MVS, to take leading roles in their development plans. A knowledge of BAL would be useful, but not essential. A vacancy also exists for a BAL Programmer. Excellent career path & benefits apply. Ref: B738

PROGRAMMERS & ANALYSTS — **LONDON/HANTS** — **c. £12,000**
Our client, a leading Software Organisation needs Programmers & Analysts to perform Customer Support roles within the U.K. & abroad. Applications include banking & other financial applications together with communications software & hardware support. Applicants must have COBOL or BASIC (+), or AIMS, together with good communicative skills, & be prepared for occasional worldwide travel. Experience of DEC VMS, RSX 11 or RSTS/E would be an advantage. Excellent training facilities & opportunities for advancement in a fast-growing market. Ref: A655

IBM PROGRAMMERS — **£11,000 + benefits**
This international organisation needs Programmers with a minimum of 2 years IBM COBOL and/or BAL, to develop large on-line financial applications in an MVS/IDMS environment. Knowledge of CICS useful, but training will be given. Excellent career prospects & benefits apply. Ref: B745

FORTRAN SPECIALISTS — **LONDON/HOME COUNTIES** — **c. £11,000**
Programmers are required to join existing development teams to work on a wide variety of applications including scientific, research, engineering and commercial projects using minis & mainframes, including DEC, HP, DG, etc. Knowledge of UNIX or STATUS would be useful for a site in Middx. Ref. A622

OPERATIONS

MVS SENIOR OPERATORS to SHIFT CONTROLLER — **£10,500 to £14,000**
Leading organisation in Middx requires Senior Operations staff to Shift Controller level to complement their expanding teams. Excellent prospects & benefits including RELOCATION costs, where applicable. Ref: A525

HONEYWELL OPERATOR — **W. COUNTRY** — **£8,000+**
The ideal person should have a good operating knowledge of GCOS III gained on Level 66. Applicants with exposure to the DPS 8 range will also be considered. RELOCATION will be paid, where applicable, & an excellent career path is guaranteed. Ref: B781

MVS OPERATORS — **W. COUNTRY** — **£8,000 + S/A**
At least 18 months' experience of MVS/JES 2, preferably with JCL/IMS is required by this leading financial organisation. Excellent salary and monetary benefits apply which include a PROFIT-SHARE SCHEME. Ref: A547

IBM OPERATOR — **CITY** — **c. £7,400+**
Ideally the successful applicant will have at least two years DOS/VSE experience together with working knowledge of VM. Excellent career path & benefits include MORTGAGE facility. Ref: B123

ICL OPERATORS — **LONDON** — **c. £7,200+**
A leading financial organisation seeks Operators with VME/B or DME GEORGE II experience for their expanding operations division. Excellent monetary benefits are offered including MORTGAGE facilities. Ref: B558

DATA CONTROL CLERKS (Any Mainframe) — **LONDON** — **c. £7,100+**
Our client, a large International Banking Organisation, seeks experienced Data Control Clerks for their new department. Excellent company benefits include MORTGAGE, Free Life Assurance, etc. Ref: B666

JUNIOR IBM OPERATOR — **BERKS** — **c. £8,500**
One year's IBM experience is required for this 4341 installation, training in CICS will be given. PROFIT SHARE & FREE LIFE ASSURANCE are just two of the many fringe benefits. Ref: A571

BUICK COMPUTER SERVICES
RECRUITMENT DIVISION
72 Rochester Row
Victoria · London SW1P 1JU

Tel: 01-834 0061 (24-hours)
Or call evenings and weekends
REF. A: 01-639 7548
REF. B: 01-794 5937
REF. C: 01-942 1178
REF. F: 01-435 2670

The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives (4789)

FUTURE COMPUTERS

Exceptional Growth Company

Future Computers Limited is a new British company dedicated to the design and manufacture of leading micro computer systems aimed at the business market. Future Computers is backed by a consortium lead by the British Technology Group and the APA Venture Capital Fund.

The philosophy of the Company has been to create an advanced family of 16 and 32 bit computers using the best of design and technology with features to satisfy known and future needs in industry and commerce, and still priced to compete in world markets. The introduction of the Future computer range offers the business user a wider choice of planned options than has ever before been available from a micro computer manufacturer.

Starting with a powerful stand-alone micro computer, the range can grow simply and cheaply to become a fully integrated electronic office, with multi-user, multi-tasking networks and micro to mainframe communications. The 'future evolution' concept allows any size of business from the High Street to Wall Street to enter the range at a performance level to suit its needs, and grow from that point.

Senior Analyst – Systems Software
To £14,500

If you can claim two out of the following we would like to talk to you:
1. Five years experience in micro/mini computers.
2. Communications experience.
3. Responsibility for planning software development in overall design structure.
4. Knowledge of operating systems.

Systems Programmers
£8-£12,000

We would be interested to talk to graduates with a relevant degree or equivalent, and individuals with experience in one or more of the following areas:
1. One year or more experience in mini/micro computers.
2. Communications experience.
3. Knowledge of operating systems.

The successful candidates will become responsible for state-of-art developments in the following areas; INTEL 186/286; ETHERNET and other local area networks; colour graphics; Winchester controllers; CPM/86; MSDOS; UNIX.

For an informal interview or to obtain further information please call **Ian Goldsmid** on **01-935 0671** during office hours; alternatively send your confidential resume to the London address below.

Technical Sales & Management Appointments

SCR Specialist Computer Recruitment Ltd

SOUTH	MIDLANDS & INTERNATIONAL	NORTH	BELGIUM	HOLLAND
James House, 46 James Street, London W1M 5HS 01-935 0671/486 0461	35-37 Great Charles Street, Queensway, Birmingham B3 3JY 021-236 3761	International House, 84 Deansgate, Manchester M3 2ER 061-833 0427	Avenue Louise 327, Boite 4, 1050 Bruxelles 010 322-640 7151/71	Willemsparkweg 92, 1071 H.M. Amsterdam. 010 3120-760947

— DATABASE DESIGNERS
— ANALYSTS
— PROGRAMMERS

We wish to recruit a number of experienced computer professionals for Tangent's Systems and Programming Support Team. Enquiries will be welcomed from both contract or permanent staff and we can offer attractive opportunities and excellent remuneration to all successful candidates. Current requirements include the following:

PROFESSIONAL SERVICES PROGRAMMERS AND ANALYST/PROGRAMMERS

SYSTEM 12/40, Message Switching experience	Software Engineers	London
IDMS, VME/B, COBOL	Programmer/Analysts	London
BASIC + or BASIC + 2	Programmers	Essex
RAMIS	Any Levels	Middlesex
HP 3000, COBOL, IMAGE, VIEW	Programmers	London
VM	Systems Programmers	Surrey
FORTRAN, TI 990	Programmer/Analysts	Essex
COBOL, WANG	Programmer/Analyst	Essex
HONEYWELL L6 Screenwrite	Analyst/Programmer	Kent
IMS DB/DC, ADF	Programmers,	London
	Programmer/Analyst	Home Counties
IBM S/38, RPG III	Programmer/Analyst	Essex
NOMAD	Programmer/Analyst	Home Counties
CP/M Z80	Programmers	London

Please contact: TANGENT COMPUTER SERVICES LTD.
192/196 South Street
Romford
Essex RM1 1RX
Tel: Romford (0708) 756201

tangent
SUCCESS IN THE SOFTWARE WORLD

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kba computer systems

Micro-Cobol Programmer

Location: Surrey/Hampshire Border
Salary: c.£10,000 p.a. + bonus

Our client, Keith Brindle Associates Ltd., is a software house that specialises in the development of systems for motor dealers. Their current base of clients is impressive and they now wish to recruit a Micro-Cobol Programmer to help service and develop an important new product.

★ If you have around 4 years' experience as a Programmer
★ If a significant part of that experience is using Micro-Cobol
★ If you are looking for a different career opportunity
★ If you can communicate with others, both in technical and business terms

.... then you are probably the kind of person our client would like to meet.

A growing company, Keith Brindle Associates is a small, enthusiastic team, and you will be given the opportunity to make a major contribution to their progress.

Please telephone, or send a short personal history to A & A Consultants (Holding) Ltd., County House, 10 Little Portland Street, London W1N 5DF. Tel: 01-631 4184. Please quote Ref. No: 93.

A&A (4810)

Sales Spot

TO ADVERTISE IN JOB SPOT PHONE JAMES ATTEWELL 01-567 5501

SENIOR SALES EXECUTIVE
c.£20,000 + Car
MKA
Confidential Reply

Our client designs, manufactures, markets and services high performance computers and computer systems. These systems are utilised in industrial applications including process control, power production and distribution, manufacturing and communications network. Viewdata systems are another major market area. They are currently seeking two high calibre Senior Sales Executives to be based from their offices in Berkshire. Candidates should have a proven track record in systems sales, preferably selling Minis to end users and software houses, in the industrial market place. An excellent sales support team and outstanding career opportunities are offered.

LOCATION: BERKSHIRE TB801

apollo computer (uk) ltd.

TECHNICAL SALES EXECUTIVE
OTE £27,500 + Car

Apollo Computer have already achieved remarkable worldwide success selling their unique and powerful multiload work station systems into scientific, engineering and computer science environments. To meet the demand for Domain Systems in the Oxford area, a successful Sales Executive with a minimum of three years' experience is sought. The candidate should ideally reside in the Oxford, west Northants, north Buckinghamshire areas or nearby and will have a technical background with either a Supermini manufacturer, bureau or turnkey supplier. Full product training will be provided in America.

LOCATION: OXFORD AREA TB802

SALES EXECUTIVE
c.£20,000 + Car
MKA
Confidential Reply

A major computer services company, operating on a national basis, has recently launched a powerful financial planning package designed to run on microcomputers. They are soon to mount a widespread marketing campaign and require a Sales Person to develop the existing dealer network.

This is a responsible position covering the country as a whole and reporting directly to the managing director. It is essential therefore, that candidates are self starters with a successful background in sales. Experience of financial planning and microcomputers would be advantageous.

This is a real opportunity to establish a new software product and enhance both career and earnings.

LOCATION: UK JB701

RECRUITMENT CONSULTANT
c.£15,000
MKA
Confidential Reply

This is your opportunity to share in the success of the fastest growing consultancy in the UK. Ideal candidates will have experience of selling computer services or equipment but we are also very interested if you are currently employed in a technical role and feel you have the drive and ability to succeed in consultancy.

MKA Search International, has offices in Worcester and Amersham and are now seeking to expand with the addition of two further consultants. Selected applicants will receive a high basic salary, car allowance and a realistic opportunity to increase earnings by way of commission.

LOCATION: WORCESTER AND AMERSHAM JB702

Action..
Ring or send the coupon to MKA Search International Ltd, Sharles House, Merchampen Street, Worcester WR1 2DQ

Name ....
Address ....
....
Home tel .... Work tel .... Ex ....
I am interested in Ref. .... (4788)

CONTRACTORS

IBM

IBM 370 Series MVS Cobol, TSO/SPF ADF IMS Analysts/Programmers
IBM Cobol, IMS DB/DC Analyst/Programmers + Senior Programmers
IBM System 38 RPG II (financial exp.) Analyst/Programmers
IBM 4331 (Sept start) Cobol CICS SDF Systems Analysts + Analyst/Programmers
IBM 4341 DOS/VSE VM/CMS VSAM Cobol CICS Programmers
IBM DOS VM V6E Power Cobol CICS Analyst/Programmers
IBM MVS/OS PL/1 Jackson IMS OS Analyst/Programmers
IBM 3032 MVS Assembler Cobol Analyst/Programmers
IBM MVS/OS PL/1 IMS DB/DC (on-line + batch) Analyst/Programmers
IBM OS/MVS Assembler Cobol (on-line) DL/1 CICS Panvalet/Filetab Analyst/Programmers
IBM 30XX VM370 or VM/6P Assembler Systems Programmers
IBM 30XX MVS VSAM JSP Cobol Analyst/Programmers
IBM IMS DB/DC PL/1 Analyst/Programmers
IBM IMS DB/DC Database Administrator/Consultant

Project Leader Burroughs systems database experience immediate starts

ICL

ICL experienced Project Leader
ICL + Data Analysts Analysts
ICL + IDMS Database Designers
ICL IDMS Database Analysts
ICL ORS20 CIS Cobol Senior Programmers
ICL VME/B Cobol Analyst/Programmers
ICL 2900 IDMS VME/B Cobol Analyst/Programmers
ICL 2900 IDMS + TPMS VME/B Cobol Analyst/Programmers
ICL ME 29 TME IOMS TP Cobol All Levels
ICL 2900 IDMS invoicing/billing systems exp. Senior Systems Designers
ICL George 3 DME Cobol Senior Programmers

Urgent – Junior Analysts and Analyst/Programmers. We require micro and mini people with systems experience. Real-time design experience necessary.

USA

Systems Programmers with VM/CMS BAL
Systems/Programmers with IMS CICS MVS
Analyst/Programmers PL/1 IMS DB/DC (permanent vacancy)

South Africa

Operational Support person with George 3 experience
Business Analyst/Project Managers preferably with ICL background

Holland

Systems Designers with Mumps or Natural Adabas experience
Programmers with Gould SEL or PDP 11 RSX11 experience

Others

Mini/Micro Unix C Systems Engineers
Motorola 68000 Pascal Software Engineers
VAX 11/780 Fortran Analyst/Programmers
Tandem Cobol Programmers
VAX VMS Pascal Analyst/Programmers
Prime Primos Fortran Analyst/Programmers
CTL Cobol Programmers
Wang V6 Cobol Programmers
Data General ADS/RDOS or Cobol + Business Basic Programmers (Commercial applications) + Analyst/Programmers
PDP 11 RSX/IM+ RMS Fortran 77 Programmers
VAX Cobol Programmers
VAX + any Cobol Programmers
Urgent Real-time Coral 66 GEC 4000 Analyst/Programmers + Software Engineers
TI 9900 Assembler Data Communications Analyst/Programmers
Technical Authors

Immediate opportunities and a straight deal... Call Debbie
(Hemel Hempstead)
on 0442 40761
or Isabel (Croydon)
on 01-681 8311

WIN A WINTER HOLIDAY FOR TWO

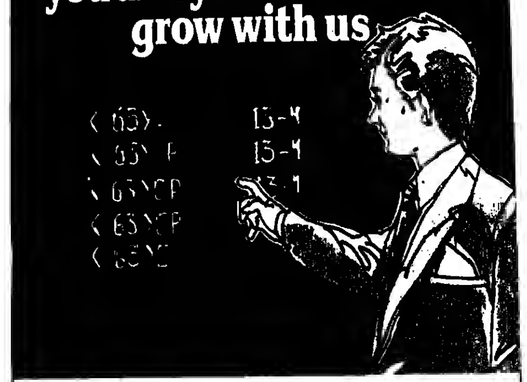
There's still time to become eligible for our free Holiday Draw.
Every contract we work through us between 1st April and 31st October 1983 will be eligible for a chance to enjoy two weeks in Italy or Morocco for 2, paid for by Computer Search & Selection.
Don't miss out!
register now with Debbie on 0442 40761 or Isabel on 01-681 8311.

Computer Search and Selection,
Hamilton House, Marlowes,
Hemel Hempstead, Herts HP1 1BB.

Computer Search and Selection,
6th Floor, Carolyn House,
Dingwall Road, Croydon, Surrey CR0 9XF.

Computer Search & Selection

Systime is growing fast... you and your career can grow with us



We have grown fast because we have top quality products and services... and we are looking for high quality lecturers to train our customers and staff in computer software – ensuring the continuation of that quality in the future.

The positions are based in Systime's new headquarters in Leeds – a superb purpose built manufacturing and administrative building which offers a first class working environment. Training in presentation and communication skills will be given where necessary, and there are excellent career development opportunities.

Very attractive negotiable salary with big company benefits.

SOFTWARE LECTURERS

To train customers/Systime staff in programming/analysis skills and system software.

You should be mid 20's – late 30's, ideally degree level, and have experience in lecturing or training in the computer industry/education, or in software development/support and good communications skills. An RSTS/VMS background is a strong advantage.

Contact our Personnel Department immediately, Systime Limited., Millshaw Park, Leeds LS11 0LT Tel: Leeds 702277

SYSTIME

Rise to the challenge of Systems Development

The West Midlands Passenger Transport Executive is a leading Public Transport undertaking with a fleet of 2,000 vehicles and a total of over 8,000 employees. We have embarked upon an extensive programme of applications development, including on-line and database systems. We use an ICL 2988 running under VME 2900 and a 2960 running DME/George III. In addition, the Executive operates an ME 29 Minicomputer using TME. We are currently developing a complex telecommunications network based on Local Area Network technology designed to provide local processing facilities at sites throughout the West Midlands.

The opportunity now exists for experienced computer professionals to work on projects within the development programme.

Technical Co-ordinator £10,393 – £12,048

To control, co-ordinate and advise on the investigation, design and implementation of communications networks incorporating hardware and related systems. A minimum of 4 years technical experience in planning and implementing data communications networks is required, together with experience of ICL communications and RACAL equipment.

Senior Programmer £9,240 – £10,794

To direct and co-ordinate a small team of programmers on the development and maintenance of a wide range of computerised systems. Additionally he/she will contribute towards the development of management information systems. A minimum of 3 years experience of COBOL and ICL hardware is essential and some experience of database applications would be useful.

Programmers £8,571 – £10,006

To join a small team developing and maintaining programs for a wide variety of management and financial information systems, including Database applications. Applicants should have a minimum of 3 years experience of COBOL and ICL hardware; some knowledge of Filetab would be advantageous.

All posts are based in Central Birmingham and carry attractive fringe benefits. Job descriptions and application forms can be obtained from: Personnel Department, West Midlands Passenger Transport Executive, 16 Summer Lane, Birmingham B19 3SD. Tel: 021-622 5151 ext. 41. Closing date for receipt of applications 3 August 1983.

WM West Midlands Passenger Transport Executive

(4797)

IBM COBOL – BANKING SYSTEMS

ABN Bank ... Algemene Bank Nederland is one of the world's largest banks with branches spread internationally in 42 countries. ABN Bank's international network is constantly being expanded to further improve its service to an ever-growing worldwide clientele hence they are seeking to recruit three additional staff for their London based dp department.

The London Data Processing Centre has recently developed and implemented a large DL1 Database system currently being used by the UK branches.

Further development and enhancement of the system is now being undertaken to enable it to be used by the Group's international branches.

Successful candidates will rapidly become involved in this area and several new projects envisaged for early 1984.

CHIEF COBOL PROGRAMMER

to £13,000 + Bank Benefits

As Chief Programmer you will be responsible for co-ordinating and leading a medium sized team of programmers, scheduling work and ensuring standards are maintained. You will advise and assist where necessary and liaise regularly with both users and analysts. Your background should include a sound knowledge of COBOL and experience of DL/1.

COBOL PROGRAMMER

to £11,000 + Bank Benefits

With a minimum of 2 years' COBOL expertise preferably gained within an IBM DOS/VSE environment you could be given the opportunity to join this international bank.

Preference will be given to candidates knowing DL/1 although FULL TRAINING in DL/1 will be provided if necessary.

CENTRAL LONDON

benefits include:

★ Non-contributory Pension
★ Non-contributory Private Health Scheme
★ Luncheon Vouchers
★ 20 Days' Holiday
★ Loans/Mortgages at beneficial rates

To progress an application for these positions write or telephone DP Selection Services quoting reference W7281

01-434 2042
(24 hour Ansaphone)

dp SELECTION SERVICES
A member of the DP Support Services Group
7 Swallow Street, London W1R 7HD
"We look forward to hearing from you."

I47871

WE'RE LOOKING FOR COMPUTER PERSONNEL WHO WANT TO WORK ON CONTRACT

If you are thinking of going contract or if your current contract is ending soon **we would like to hear from you.**

PFS was established 18 months ago as services and consultancy subsidiary of the Euribon Group. We are currently providing project teams, consultancy and individual computer staff to some of the country's leading companies to work on the various installations of differing manufacturers systems throughout the United Kingdom.

If you wish to be associated with a growing and respected company please send your c.v. or telephone the following:

Neil Dennis
or Yvo Henneker-Heaton
PFS Computing (UK) Ltd.
Barker Gate House
Belward Street
Nottingham. NG1 1JY.
Telephone: 0602 580935
Or Derek Wadham at:
Thatcham (0635) 66923.

pfs Project Facilities Services Computing (U.K.) Ltd.

Hertz

ANALYST PROGRAMMER

Circa £11K

with ★European travel
★TI & IBM development
★Excellent career prospects

Based at the modern West London Head Office of Hertz Europe, you will be one of a team of 10 in the Pan-European Development team. Your work will focus on developing and installing systems on overseas TI990s which have communication to our client's Head Office IBM mainframe.

This will entail European travel, liaison with senior user staff, and troubleshooting, within 7 countries covered by the European operation. Project requirements will determine frequency and duration (normally 1 to 5 days) of these trips.

Our client regards personality to be equally as important as the right background in making this appointment. Positive, confident and outgoing, you should have 2 years COBOL on IBM mainframes and/or TI990s as well as having some analysis and user experience. Because of the demands of the job, single status could be an advantage.

To find out more about this exciting opportunity, please call Jeff Boston on 01-930 4041 during business hours or 078087 428 during evenings and weekends.

(4764)

Fraser Williams Recruitment & Training
19 Charing Cross Road,
London WC2H 0ES.

COBOL in Surrey

ICL 2900 DEC/VAX Micros

Analyst/Programmers
to £11,000

This established Management Services Department is gaining an increasingly heavy volume of work from user departments and is in the process of developing new systems. These will be on a variety of hardware—ICL 2900 mainframes (under VME and DME), VAX 11/780 (VMS) and micro-computers, both stand alone and linked to the mainframes. If you have 3-5 years' experience of COBOL programming and design, gained in a VME, DME or VMS environment, these offer you the opportunity of initial training in appropriate areas and other training as your career develops. There are many benefits in addition to the salary, including assistance with removal expenses where necessary.

Senior Programmers
to £10,500

If you have substantial experience of ICL COBOL, are a good organiser and can offer leadership skills, this position gives you the opportunity to gain supervisory experience and a knowledge of micros. Training in structured programming techniques will be given where necessary. A knowledge of BASIC could be useful.

Programmers
to £9,000

A minimum of one year's experience of ICL STRUCTURED COBOL is required for these positions, one of which will offer training in VAX 11/780 COBOL, as some applications are being converted to an on-line environment. The sports and social club is very active.

For these and other positions please contact Joan Ainsworth on 01-681 8311 or write to her at Computer Search and Selection, 6th Floor, Carolyn House, Dingwall Road, Croydon, Surrey, CR0 9XF.

Computer Search & Selection

We need more assistance to tackle some knotty problems

Opportunities now exist within an internationally successful organisation to develop high technology display systems at their recently established division in Surrey. Whilst providing the security of a large company the division is small enough to operate autonomously having a young management team which has already created a friendly and dynamic work environment.

SENIOR ANALYSTS TO £12,500
PROGRAMMERS TO £11,000

Young and enthusiastic Senior Analysts and Programmers are invited to join small highly creative design teams utilising the latest techniques on 8086/80286 micro processor hardware.

Ideally you will have experience in some of the following:-
- HIGH LEVEL LANGUAGES (RTL/2, PLM/86, CORAL)
- REAL-TIME SYSTEMS
- MULTI TASKING, MULTI PROCESSING EXECUTIVE
- HOST/TARGET DEVELOPMENT USING VAX 780

You will become involved with:-
- LANs (ETHERNET)
- X25 PACKET SWITCHED NETWORKS
- DISTRIBUTED DATABASE SYSTEMS
- RASTER GRAPHICS
- GRAPHICS KERNEL SYSTEM
- DIAGNOSTIC SOFTWARE

IPP Information Processing People
20 Kensington Church Street, London W8 4EP
Telephone 01-938 1804 Telex 22861

For further details regarding these vacancies please telephone in strictest confidence **Miles Richards on 01-938 1804 (24hrs) or 01-847 2385 (7pm-9pm).**

4714E

DRAGON Data Ltd

Todays Dragon strikes no fear! It does however have the same strength of purpose as the creature of mythology.

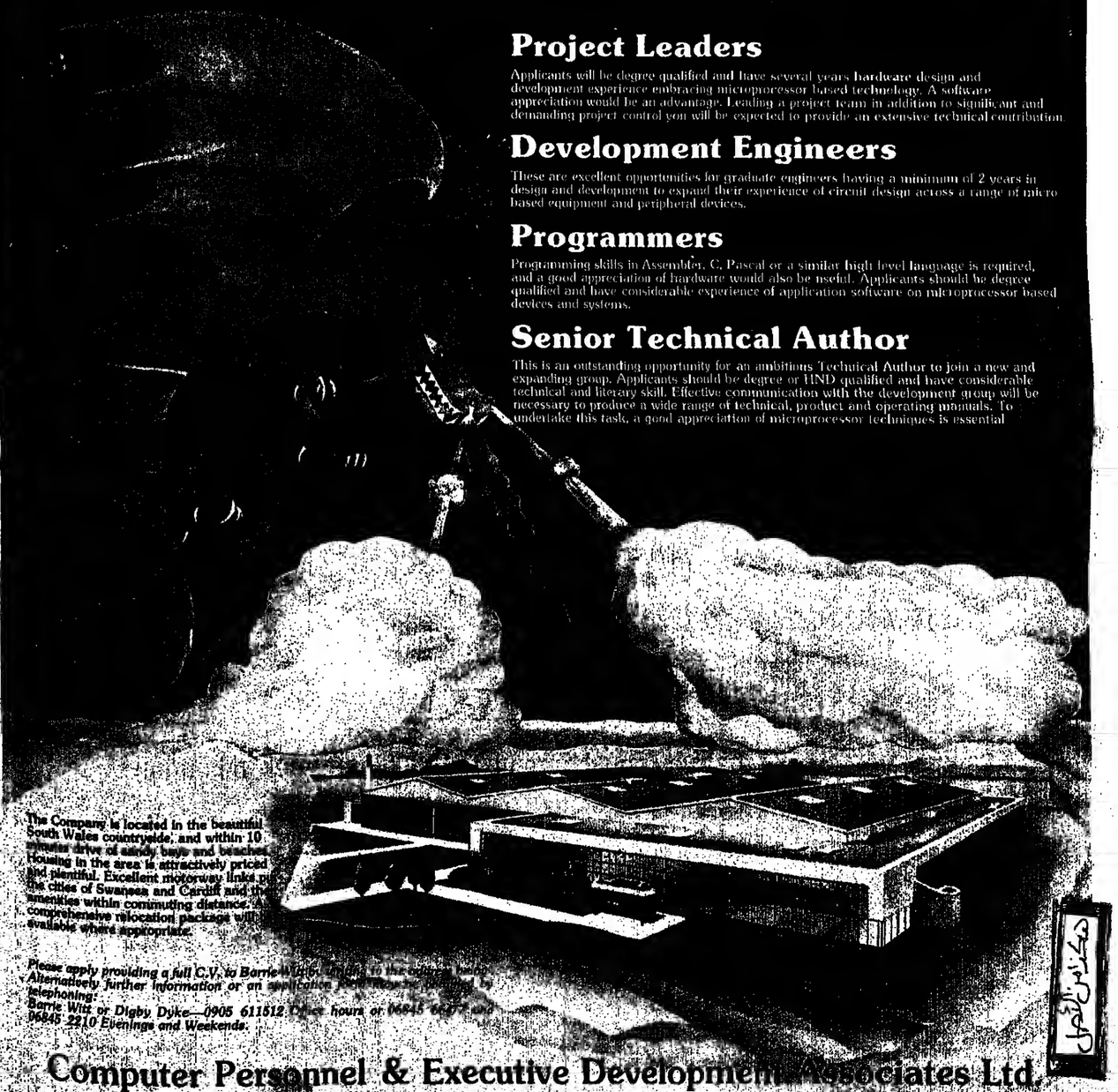
Dragon Data Limited is profitable, rapidly expanding and symbolic of that which is best in British Technology. Innovative in the design, development and manufacture of high quality, successful products, it is now a market leader and major exporter in home computers.

New projects are for business, education and other applications using multi-tasking/multi-user systems, based on a variety of microprocessors including 6809, 68008 and 8088.

The continuing success of the Company requires additional ambitious, committed professionals seeking the opportunity for projecting their ideas and efforts into a young dynamic organisation.

Project groups are small, dedicated and generally operating to short timescales. This provides considerable challenge, involvement and responsibility.

Applicants of the highest calibre are sought and outstanding salary and benefits will be offered for all posts.



Project Leaders

Applicants will be degree qualified and have several years hardware design and development experience embracing microprocessor based technology. A software appreciation would be an advantage. Leading a project team in addition to significant and demanding project control you will be expected to provide an extensive technical contribution.

Development Engineers

These are excellent opportunities for graduate engineers having a minimum of 2 years in design and development to expand their experience of circuit design across a range of micro based equipment and peripheral devices.

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Computer Personnel & Executive Development Associates Ltd.
Old Bank House, Bank Street, Worcester, WR1 2EW

Philip Hunter traces an interesting development in the contract market

Are the contractors starting to squeeze out the agencies?

CONTRACT agencies are now finding themselves squeezed between contractors who are demanding more money to at least keep pace with inflation, and clients who have imposed a freeze on charge out rates.

For many this will seem good thing. The agencies have long held a near monopoly of the contract market, and many contractors and clients alike feel they have been taking too much of the cake.

But now, as the contract market shifts its axis to more specialist computer applications, it is more and more the contractor who is calling the tune. And ot the some time clients are demanding more of their contractors.

Contract agencies operate by charging a fee to a client for a contractor's services, taking out their cut, and passing on the rest as a weekly, or sometimes monthly wage. Traditionally this cut was 25 to 30% of the fee.

Now it varies more, but has come down on average to around 22%. VNG Professional Services, which does a lot of business in the North of England, now takes an average 18%, and for clients which nominate it as one of two or three preferred suppliers, the cut is not much over 10%.

Agencies have also come under attack by a National Computer Contract Directory, set up by Willoway. This abolishes the agency fee by putting contractors and clients in direct contact. It has achieved modest success, but some clients are deterred from using it because it involves more work sifting through curriculum vitaes and organising terms of contract.

Clients usually take on a contractor for one of two reasons. Either it is to fulfil peak demand such as when a project is in full flight, or it is a stopgap measure while the search for a permanent person goes on. Some companies also use contractors to give more immediate control over staff numbers.

For some companies the recession has eased this year, and this has meant that projects suspended in purgatory have come in from the cold. Hence a need for more contractors, especially ones skilled in systems programming, real-time software and IBM CICS.

The improvement in the market reported earlier this year by some agencies in the south east of England is now being repeated in the North, but in the Midlands the slump continues. Previous big employers of contractors there like British Leyland and Lucas are still not taking people, although with car sales hitting the roof, there is a good chance of improvement.

Some agencies recognise the importance of the provinces as business picks up. VLI, the UK's biggest agency, recently invited aspiring local contractors and permanent programmers, analysts and operators to a beery meeting in a Bristol pub.

"We see a need to hold these events in outlying areas where people cannot walk through the doors of our agency offices," says Lee Walkinshaw, managing director of three VLI companies, Computer People South, Midlands and North.

Some Bristolians might resent their cosmopolitan city being called outlying, but anyway 130 people turned up to see what contracting was all about, or maybe for the beer.

They had the usual cross-section of fears, says Walkinshaw. Were they good enough, and would they keep in work?

The answer to both questions depends on the type of skills. CICS, online, real time, database, that sort of thing, are in vogue, says Walkinshaw.

IBM has 60% of the contract market, Walkinshaw points out, which is more than its share of the computer market itself. "The man who's bought IBM is prepared to spend more money to get what he believes is the best," says Walkinshaw. And the best often swim in the contract pool, where the water is deepest.

Another quality required of a contractor is tact, insists Walkinshaw. "The contractor has to be something of a diplomat. He has to be able to function like a chameleon and do just what the client wants. It is no good for people who want to change the world."

It is getting harder to place junior people in the contract market. "The day has gone when you can place a contractor with just two years experience," says Walkinshaw. People are having to spend more time picking up experience in permanent work before blazing the gold-laced contract path. But if your skills are highly coveted, like CICS, then you can turn contract sooner.

And the market for operators has steadied after declining about two years ago. Many agencies do not bother with operators, but VLI, KPG, Knight Computer Services and Trident all do. More of the contracts for operators are now with distributed minicomputer systems, but there is still work at traditional mainframe sites.

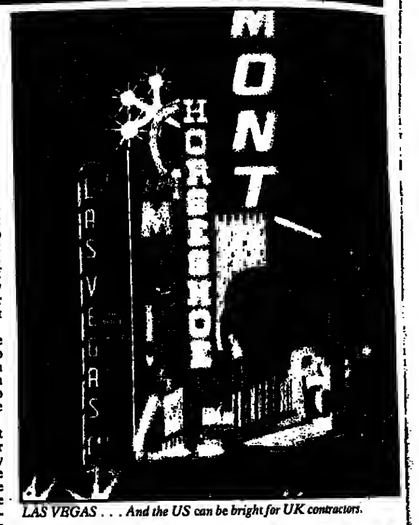
Overseas, the boom area is the US, where people are reluctant to cover the vast distances in search of contract work. More American companies are therefore coming to the UK when a lot of staff are wanted at short notice.

VLI has opened a permanent office in Kentucky to look after one single account with a company called Capital Holdings. There are still 65 contractors working there 18 months after the first 60 people went out. The problems of immigration to the US can usually be overcome in weeks on big projects involving the bigger UK agencies and US corporate clients.

Trident is also picking up a lot of business in the US, and contracts manager Steve Whiting confidently predicts that in 12 months it will be as big as the UK operation.

Again IBM is the biggest market, but unlike the UK, there are many opportunities for Univac programmers. Univac has beaten IBM to several enormous defence contracts in the US, and Trident will shortly announce the dispatch of a big consignment of UK contractors to one of them.

There are still contracts to be had in the Middle East, but they are less lucrative than they were, partly because of the return to fiscal reality there that has accompanied the fall in world oil prices.



LAS VEGAS . . . And the US can be bright for UK contractors.

In Europe the contract market has declined, particularly in Holland where many companies used to hire foreign contractors to bypass the Dutch industrial relations act which forbad domestic contract labour.

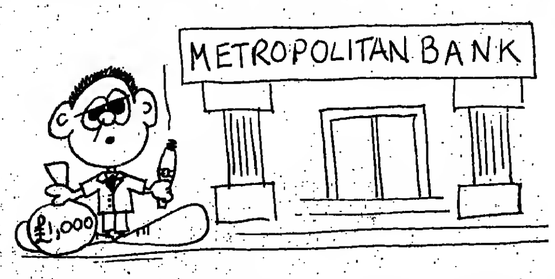
Back in the UK, ICL contracts are flowing in fast. This follows the draconian staff cuts at ICL that came with the management changes of two years ago. The company was left with mere skeleton cover and has since resorted to contractors to make up project teams.

Meanwhile, many of the redundant ICL programmers have joined the contract labour force, and are working at ICL installations, rather than for ICL itself.

Inevitably, microcomputers are coming on the contract scene. Comac, one of the younger agencies that has flourished in the warmer economic weather, reports a new demand for programmers with experience of CIS Cobol for micros. And there are also contracts for Pascal programmers on scientific applications.

But it must be stressed that the number of micro contracts is few compared with the number of micros. When you can buy micro software for less than £100, it is not surprising that users wonder at the wisdom of paying £500 a week for a contract analyst.

CAPITAL GAINS FOR CONTRACTS IN LONDON BERKSHIRE BIRMINGHAM



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Honeywell GCOS, TDS	DB 110

URGENT
DG Eclipse COBOL INFOS, TPMS
DG RDOS ASSEMBLER
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CW 108

IBM Adabas, Natural Progs.	DL 15B
IBM DATABASE Administrator with IMS DB/DC	SC 113
IBM B100 DPCX or DPPX	SB 115
IBM PL1 IMS DB/DC, some with JSP	DB 11B
IBM PL1 and CICS	DL 11B
IBM PL1, Adabas	DB 117
IBM VM System Programmer	DL 11B
IBM COBOL IMS DB/DC	CW 114
IBM COBOL CICS DL1, some with JSP	DL 120
IBM NOMAD	PH 121
IBM System 38 RPG III	SB 122
ICL Plan	DB 127
ICL DRS 20 and CIS COBOL Progs.	CW 147
ICL IDMS Systems Prog./Designer	CW 129
ICL ME29 TME range COBOL	CW 130
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ICL 2900 VME Technical Support, all levels	CW 134
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(4776)

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Application forms from the Administrative Officer, Borough Treasurer's Department, Civic Centre, Lampton Road, Hounslow TW3 4DN. Tel 01-570 7728 ext 3372. Closing date: 12 August 1983.

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Hillingdon

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(4807)

Teesside Polytechnic
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Teesside Polytechnic Computer Centre requests quotations for the supply of:

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Separate quotations should be given for items (a) and (b) above, and the Polytechnic reserves the right to accept the quotation for one item but not the other.

Details may be discussed with the Head of the Computer Centre: Telephone Middlesbrough 218121 ext. 4118.
Closing date: 16th August 1983.
Delivery is required by September 1983.
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(4789)

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Up to £14,300

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CROYDON

Contact B. W. Alfred on 01-686 4433 extn. 2051 for informal discussions and/or send full c.v. to Head of Computer Services, London Borough of Croydon, Taberner House, Park Lane, Croydon CR9 3JS.

(4828)

The City is in the process of overhauling its financial systems by implementing a new city wide financial and management control system based on the purchase of a number of software packages and in house development.
Implementation is being carried out by a multi disciplinery team within the Systems Section of the Accountancy and Budgetary Control Division and suitably qualified persons are invited to apply for the following post:-

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- An involvement in on line systems and personel computing will also be required.
- Ideally candidates should have a wide experience in payroll and/or systems work, preferably in the implementation of C.Pac in another organisation.

Application forms returnable by 12th August 1983 obtainable from City Treasurers Department, Personnel and Services Office, Council House, Birmingham B3 3AB. Telephone:- 021 235 2993 or 2385 quoting reference PD/1. Informal enquiries to R. Chapmen 021 235 2385. Canvassing will disqualify. An Equal opportunity employer.

(4811)

BIRMINGHAM CITY COUNCIL

CAMBRIDGE UNIVERSITY LIBRARY

ASSISTANT LIBRARY OFFICER (Automation)

Graduate programmer/analyst required as soon as possible to undertake the introduction of an on-line book issue system, including design, implementation and day-to-day supervision. Programming in FORTRAN 77 on a Perkin-Elmer 3220, using barcode readers. Stipend on the scale £6,745 to £8,975. Further particulars from the University Librarian, Secretary to the Appointments Committee for the University Library, Cambridge University Library, West Road, Cambridge, CB3 9DR, to whom applications should be sent by 9 September.

(4744)

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MANAGER

SKELMERSDALE INFORMATION TECHNOLOGY CENTRE

£12,498-£13,605

The Skelmersdale Information Technology Centre, which is being sponsored by Lancashire Enterprises and West Lancashire District Council is seeking a Manager to lead a team to supervise this challenging new project.

The Centre will provide 12 months' training and "hands on" work experience for 40 young unemployed people in the new Information technology, thereby enhancing their job prospects.

The Centre will cover three main areas of training:
(i) Micro-Electronics/modern electronic component and the use of microprocessors as simple control devices; (ii) Microcomputing skills associated with microcomputer operations; an appreciation of computer architecture; both hard and software, and an elementary high-level programming facility; and (iii) the Electronic Office/use of computers and electronic communication systems in modern business applications.

In addition the Centre will assist the local industrial and commercial community by making the technology accessible to local firms, especially new and small businesses.

The successful candidate will be responsible to the Management Committee for the efficient and effective running of the Centre, and will have qualifications and/or significant experience in the microtechnology field. The position requires the ability, enthusiasm and commitment to motivate young people and to establish and maintain a wide network of contacts with industry, commerce, academic institutions, etc., in order to develop the work of the Centre in an imaginative way.

More detailed information can be obtained from the address given below.

Please write with full c.v. to the Personnel Manager, West Lancashire District Council, 52 Derby Street, Ormskirk L40 2DF.

(4804)

PETERBOROUGH CITY COUNCIL
CITY TREASURERS DEPARTMENT

COMPUTER AUDITOR
SENIOR OFFICERS GRADE 1/2
£9,060-£10,539

Applications are invited from persons with relevant computer experience for this post which is situated within the Audit Section.

The postholder will be responsible to the Chief Internal Auditor, and as the Council is engaged in an extensive and ambitious development programme, the person appointed will be required to expand and develop the Authority's approach to computer audit incorporating both new and existing systems.

The Council has recently installed a range of ICL equipment, including a network of terminals located in most central departments, all are linked to a central ME29 which also acts as a terminal link to an IBM 4341.

In addition to the salary we offer:

★ Flexible working hours (37 hours per week) and (in appropriate cases)
★ Generous relocation expenses (including solicitors and estate agents fees)
★ Housing accommodation or lodging allowance

Application forms and further details available from City Treasurer, PO Box 9, Town Hall, Bridge Street, Peterborough PE1 1HQ, or by telephoning Gulam Sherali on (0733) 63141 Ext 383.

Completed application forms should be returned by Friday, 12th August, 1983.

(4806)

TECHNICIAN
(Grade 4)

Required in Department of Land Management and Development, University of Reading, to take responsibility for the day-to-day running of the Department's computing facility. An interest in the development of software would be an advantage. Salary in Scale £5,826-£6,702 p.a.

Application form available from Personnel Office, Whiteknights House, University of Reading, Whiteknights, Reading, Berks RG6 2AH. Please quote Ref: T11A.

(4773)

RESEARCH OFFICER

A graduate is required as soon as possible to work on a three-year SERC project to develop software and theoretical techniques for Computer-Aided-Design of sentiment sampled data systems using a PERQ computer. The candidate would be expected to have an engineering or mathematics degree with a good knowledge of control engineering and an interest in programming and CAD. Candidates may be eligible to register for a higher degree.

Salary will be in the range £5,310 to £7,430 on the 19 scale for Research and Analogous Faculty, with superannuation benefits.

Applications, including details of three references, as soon as possible to Professor O. P. Agborson, School of Engineering and Applied Sciences, University of Sussex, Falmer, Brighton BN1 9QT.

(4798)

Suffolk Magistrates' Courts Committee

COMPUTER SYSTEMS OFFICER

Applications are invited for the appointment of a Computer Systems Officer, who will be based in the Office of the Clerk to the Justices at Elm Street, Ipswich. The person appointed will be responsible for the operation of a Burroughs B185 computer, the processor of which is housed at Ipswich and is operating in the office. It is in the process of being linked by remote terminals to Bury St. Edmunds and Lowestoft, and the Computer Systems Officer will be required to assist in the implementation of this operation. When this is complete the Officer will be responsible for the day to day operation of the whole system and for liaison with the offices remote from Ipswich, and also the training of staff in the use of the system. Applicants should preferably own and be able to drive their own car, for the use of which they would be paid an appropriate allowance.

The employment will be full time with a 37 hour, 5 day week, conditions of service are as laid down by the Joint Negotiating Committee for Magistrates' Courts' Staff. Salary according to age, qualifications and experience within the scale of £7,242 per annum-£7,950 per annum (subject to pay of living increase from 1st July 1983). Further details and an application form may be obtained from the Clerk to the Justices, Magistrates' Court, Elm Street, Ipswich, IP1 2AP. Telephone Ipswich 217281 ext 28 and ask for Mr Fuller.

Closing Date: Friday, 19th August, 1983. Interviews will be held on Friday, 9th September 1983.

(4818)

KINGSTON POLYTECHNIC COMPUTER UNIT

COMPUTING OFFICER

The User Services Section of the Computer Unit provides all the user support for the computing facilities offered at the Polytechnic for both staff and students. The Section's responsibilities include a wide range of applications software, compilers and documentation as well as program advisory and user education services.

There are two vacancies for graduates (in any subject) within range 1 Scale 4/6-(Inner)-SO1: £6,861-£8,309-(Inner)-£10,267.

Further details and application forms (to be returned by 26th August) from Assistant Registrar (Personnel), Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-549 1366.

(4834)

NEWCASTLE HEALTH AUTHORITY

COMPUTER DEVELOPMENT OFFICER

Scale 14: Salary £9,684 to £11,484

Are you a specialist in computing with an informed overview of the range of hardware and software options available to potential computer users in the NHS? Interested in helping to forge a more coherent policy for computing in a large teaching Authority? Active policy, liaison with University, medical and scientific staff, and opportunities for practical involvement, are all ingredients in this job.

Application form and job description is available from the Personnel Division, Newcastle Health Authority, 2-12 Archbold Terrace, Jesmond, Newcastle upon Tyne NE2 1EF. Telephone Newcastle (0632) 815011 ext. 218/219.

Closing date for applications, 19th August, 1983.

(4802)

BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS

Systems Analyst

Salary Scale SO 1/2 (£9,060-£10,539)

The Council is currently in the process of converting work from an ICL 2904 to ME 29/54. When this is complete the next stage of development will include an expansion of on-line facilities, particularly for other departments.

Applicants should ideally have experience of systems work and ICL Hardware/Software.

Assistance with housing may be available, coupled with a contribution towards removal and legal expenses.

Application form and job description available from the City Treasurer, The Guildhall, Cambridge. (Tel. Cambridge 356977 ext 301).

Closing date 18 August 1983

(4838)

City of Cambridge

An equal opportunity employer

Principal Engineer
Management Systems

Salary Scale £13,725 – £15,033
Post No. SM 205

This vacancy arises due to the imminent departure of the present postholder, who with other colleagues is setting up a private company.

In West Sussex, considerable investment has been made in VAX and IBM computers and specialised peripheral hardware for graphics and data collection. Computer use extends from engineering design and drafting through information systems to financial, management and control systems.

You will be responsible for formulating policies for the expansion of computer use and office automation, and for the provision of a computer based management information service.

Under development is a Resource Management System for the administration and operation of the Direct Labour Organisation, and fourth generation software tools are being used to improve development efficiency. This project involves fundamental changes in working practices within the department.

You will need to show considerable management ability and possess an appropriate qualification for this demanding post in a technical environment.

Analyst/Programmer
Salary on a scale rising to £10,539
Post No. SQ 102

The successful applicant will work as part of a small team engaged on an extensive project for the administration and control of a direct labour construction organisation.

VAX 11/780 and 750 computers are used together with a fourth generation software development system ADMINS-11 and training in the use of the facilities will be given. Candidates should have 2 or 3 years experience in commercial applications programming using high level languages and hold an appropriate qualification.

Removal, resettlement and lodging allowances are payable in approved cases and temporary accommodation may be available.

Further details and an application form are available from County Surveyor, County Hall, Chichester, West Sussex, PO19 1RH or telephone (0243) 777973 quoting appropriate reference number. Closing Date Tuesday 16th August, 1983.

West Sussex COUNTY COUNCIL

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SYSTEMS & PROGRAMMING

CONTRACT REQUIREMENTS

IBM MVS, COBOL – ANALYST/PROGRAMMER	– SOUTH COAST
IBM MVS, COBOL – PROGRAMMER	– SOUTH COAST
IBM MVS, COBOL – TEAM LEADER	– SOUTH COAST
IBM SYSTEM 38, RPG 3 – PROGRAMMER	– LONDON
IBM DOS/VSE, PL/1, DL/1 – PROGRAMMERS	– SURREY
IBM SYSTEM 38, MAAPICS – PROGRAMMER	– LONDON
HP 3000 IMAGE, QUERY, COBOL – DESIGNER/PROGRAMMERS	– LONDON
NIXDORF BASIC – ANALYST/PROGRAMMERS	– MANCHESTER
BURROUGHS 6900 GEMCOS, DMSII, COBOL – PROGRAMMERS	– HERTS
ME29 TME, COBOL, IDMS – ANALYST/PROGRAMMER	– LONDON
ME29 TME, COBOL, IDMS – PROGRAMMER	– LONDON
ME29 TME, IDMS – DESIGNER	– LONDON
ICL SYSTEM 25 – ANALYST	– MIDDLESEX
ICL VME, COBOL, IDMS, TPMS – SYSTEMS TESTERS	– MANCHESTER
ICL 2900 VME/B, COBOL, TPMS, IDMS – DESIGNER	– LONDON
ICL 2900 VME/B, COBOL, TPMS, IDMS – PROGRAMMER	– LONDON
ICL 2900 VME, COBOL, TPMS – PROGRAMMER	– SURREY
ICL 2900, IDMS – ANALYST	– LONDON
ICL 2900 VME/B, SCL, COBOL – ANALYST/PROGRAMMER	– LONDON
ICL 2900 VME/B, COBOL, IDMS – ANALYST/PROGRAMMER	– LONDON

MICROWAVE ENGINEERS URGENTLY REQUIRED
Contact Heather or Lynne on 01-948 5922 (working hours)
Or alternatively contact Lynne on 01-543 4140 (evenings and weekends)

PERMANENT POSITIONS

MVS SYSTEMS CONSULTANT – West of London — **to £17,000 + Car + bonus**

A major international software supplier is currently looking to add to its MVS systems team. You will be responsible for pre- and post-sales support of company products, which will involve you in presentations, demonstrations and training as well as product development. Although your major effort will be to support MVS products a knowledge of CICS or IMS, VM, TSO, SPF, etc., would be a distinct advantage, as would fluency in a second European language. Please quote Ref: 8033/CW.

PROGRAMMING TEAM LEADER – Berks — **to £13,500 + bens**

Due to the continuous increase in the demand for new systems, this household name company currently requires an experienced programming team leader. Based at modern headquarters, to the West of London, you will be leading a team working in an IBM environment using the most recent hardware and software releases. The applications cover manufacturing, sales, marketing and distribution and finance so a broad approach to programming is required. Please quote Ref: 8063/CW.

SNR (BUSINESS) ANALYSTS – Bucks/Herts Borders — **to £12,000**

Our client is currently switching from mainframe systems to a distributed mini environment with full use of database. To ensure that they maintain their position in world markets (they currently export 80% of their product), they need Analysts to rework the sales order processing system, from on-line order entry, to despatch and invoicing. They currently need to improve on a same day cycle, so if you match the degree of excellence required, apply now. Quote Ref: B137/CW.

SYSTEMS ANALYST – Bucks — **to £10,000**

Aged 23-28? Two years' programming, at least one year in analysis?
If the answer is yes, then you could be looking at a very bright future with a major British group. Working in a continuous development environment, you will be part of a team enhancing major systems and there is considerable contact with users and other development teams. Experience of UNIVAC 1100, is preferred, but Analysts showing the required skills will be trained. Quote Ref: B346/CW.

We also require the following permanent staff for other clients:

Datapoint Programmers/Analysts	to £11,000
Graduate Programmers Cobol IMS/DL1	to £9,500
French speaking Programmers Cobol IMS DB/DC	to £14,500
Analyst/Programmers ME29 Cobol TME	to £11,000
Burroughs Cobol Programmers Medium/large Systems	
Cobol Team Leader	to £10,500
Tech Support (Burroughs)	to £13,000

Please contact DAVID at KPG or on 01-747 0969 during the week or at weekends.

KPG
01-948 5922
KPG Computer Support Services Limited
Cobden House, Park Lane, Richmond, Surrey, TW9 2RA

(4689)

CROSSWORD

Solution to Prize Crossword No 42

B	I	R	D	C	A	G	E	■	A	C	E	T	I	C
R	■	O	■	A	■	R	■	■	■	O	■	E	■	A
I	M	P	E	R	I	A	L	■	S	W	O	R	D	S
G	■	E	■	I	■	V	■	■	■	A	■	R	■	T
■	■	D	I	N	N	E	R	P	A	R	T	I	E	S
W	■	I	■	G	■	D	■	R	■	D	■	E	■	A
H	I	N	D	■	F	I	R	E	A	L	A	R	M	S
I	■	■	■	D	■	G	■	C	■	Y	■	■	■	I
T	A	L	K	I	N	G	B	I	G	■	S	H	A	D
E	■	U	■	V	■	E	■	P	■	G	■	U	■	E
C	A	R	R	I	E	R	P	I	G	E	O	N	■	■
R	■	I	■	S	■	■	■	T	■	M	■	T	■	M
O	R	D	A	I	N	■	M	A	R	I	T	I	M	E
P	■	L	■	O	■	■	■	T	■	N	■	N	■	N
S	A	Y	I	N	G	■	B	E	W	I	G	G	E	D

This mooth's £10 first prize goea to Brian Godfrey, manager of the computer education centre at GEC Computers in Borehamwood, Herts. Prizes of £5 each are on their way to Vivian Giddings, computer programmer at Bacon & Woodrow in Southend-on-Sea, Essex, and John Hathaway, technical software manager, MER Crawley, in West Sussex.

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★ Full system involvement – component level work
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Experienced Computer Engineer with ambition?

Call Keith Wallis and make some real progress now on 01-543 4844 (day) or 048641 2675 (eves.)

ALLTRONICS PEOPLE (AGY.)

(4801)

SALES/MARKETING EXECUTIVE

Wanted to launch an exciting new range of Computer Equipment and Peripherals into the United Kingdom.

Successful and proven track record in Computer/Peripheral marketing and sales essential.

Excellent salary plus car and other benefits.

In first instance please send C.V. to:-

Managing Director,
Aim Digital Systems Ltd.,
98 Crofton Park Rd, London S.E.4.

(4822)

AIM DIGITAL SYSTEMS LTD

Freelance Systems Programmer for 8100, DPPX

To install new machines, new software release and support new users.

Please Ring: Sheila Fox
Link Associates Limited
24a High Street, Chesham, Bucks.
(0494) 784922

link

SMR
Sales & Marketing Recruiters Ltd
A Sales and Marketing Services Company

SALES EXECUTIVES
WATCH OUT –
HERE COMES THE FUTURE!

Whether or not you are currently considering a change of employment, you ought to be asking yourself if your company has the necessary resources to assure its own survival as well as your career development in this industry of technological leap-frog. Does it have:

★ A comprehensive range of computer systems?
★ Extensive research and development resources?
★ International coverage
★ Recent new product announcements?
★ Complete in-house training facilities?
★ Industrial and commercial applications packages?
★ Large user base?
★ Good prospects for advancement into management?

If so, you may already be employed by our client. If not, here's your chance to advance into a company with real opportunities for personal development. All you need is a proven ability to:

★ Negotiate at board and shopfloor levels.
★ Sell computer related systems in a creative manner.
★ Produce an effective selling strategy.
★ Deal with new and established accounts.
★ Qualify sales prospects perceptively.
★ Consistantly achieve sales objectives.
★ Co-ordinate and motivate a sales team.
★ Handle a wide range of computer applications.

Vacancies currently exist in:

MANCHESTER LEEDS
BIRMINGHAM LONDON

and successful candidates can expect a remuneration package which includes a company car, pension fund and health insurance, as well as on-target earnings of

£25,000

Please supply complete career details to Alasdair Scott in London, or Roger Dodd in Lichfield, quoting reference SSA/073.

(4682)

LONDON & SOUTH
29 Oxford Street,
London W1. (01) 734 9776

MIDLANDS & NORTH
Cathedral House, Beacon Street,
Lichfield, Staffs. (05432) 56612

Answering Service after 6 pm and weekends
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

INTERNATIONAL ORGANISATION in Geneva, Switzerland, seeks

JUNIOR PROGRAMMER/STATISTICIAN

with University degree in economics, statistics, computer science, or mathematics. Excellent knowledge of English or French and good knowledge of the other. Experience in using computers for statistical purposes including programming in a high level language such as FORTRAN or BASIC and knowledge of job control language (MVS).

Only nationals of the following countries should apply: Brazil, Gabon, Iceland, Iran, Japan, Madagascar, Niger, Norway, Portugal, Rwanda, Seychelles, Singapore, Trinidad and Tobago, Zambia, Zimbabwe.

Applications, quoting reference V/Stat/27/83 and with complete curriculum vitae should be sent to: P/Dev, Case Postale 500, CH 1211 Geneva 22, Switzerland, before 2 September, 1983.

(4837)

LEIGH INSTRUMENTS (UK) LIMITED

(A subsidiary of Leigh Instruments Limited of Canada.) Design manufacturers of avionics equipment including flight data, recording systems and support equipment. To meet an expanding activity in these fields, we urgently require the following personnel:

SOFTWARE ENGINEER

Ideally with a degree in an Engineering Science or Mathematics. Experience of Intel 16-bit micros applied to data acquisition and manipulation. Languages should include Assembler, PL/M86 and FORTRAN. Must be fully conversant with software development, testing, debugging and documentation. Should be practical and capable of developing a new product under own initiative. Therefore an imaginative but self-disciplined individual with the competence and maturity to work in a small company environment. Working knowledge and hands-on experience of hardware desirable. A significant amount of client contact will develop.

Salary negotiable, dependent upon qualifications and experience.

Five-day week. Four weeks' Holiday. Pension Scheme.

Apply with career details, to: O. O. STUART, Director, Leigh Instruments (UK) Limited, 1 Mount Road, Hanworth, Middlesex TW13 6EY, or phone 01-898 3541 for an application form.

(4735)

CYNGOR SIR
GWYNEDD
COUNTY COUNCIL

INFORMATION TECHNOLOGY CENTRE
CAERNARFON

Gwynedd County Council supported by the Manpower Services Commission is establishing the above centre as part of a development programme which will provide training in the first instance for 30 young people in key areas of basic electronics, micro-computer application, and electronic office technology.

To provide this training

SUPERVISORS

In the following areas are required:

Electronics
Micro-computer, Office Technology
and Administrative/Stores

Salary: [illegible]

The Supervisor will be responsible for developing and implementing training programmes together with continuous assessment, supervision and counselling of trainees.

Candidates must have detailed knowledge in one or more of the key areas of training, together with the ability to easily relate and communicate with young people.

It is envisaged that these posts will provide permanent employment subject to receipt of annual grant aid from the M.S.C.

Knowledge of Welsh an advantage.

Relocation expenses in appropriate cases.

Application forms and further particulars from County Personnel Officer, County Offices, Caernarfon. Closing date: 5 August, 1983

SMR
Sales & Marketing Recruiters Ltd
Leaders in High Technology Recruitment

SALES EXECUTIVES
MIDLANDS & SOUTH WEST

The Distribution Industry offers enormous potential for systems houses, particularly our client who is one of the highest respected, as well as one of the largest and longest established in the business with a very powerful and well established product offering.

We are seeking candidates with sales experience within the Distribution Industry who would appreciate a move to a company with real technical excellence and career opportunities for achievers.

Please contact Roger Dodd in Lichfield, quoting reference DSF/073.

SALES EXECUTIVES
MANUFACTURING SYSTEMS
EAST MIDLANDS & LONDON

If you are currently involved with manufacturing systems, you will be very much aware of our client's outstanding product; a real market leader in mini-computer based manufacturing systems.

If you want to increase both the quality of the product you are selling, as well as your career prospects, this is an ideal opportunity. This of course, is based on the assumption that you already have experience of selling manufacturing related products.

Contact Alasdair Scott in London, or Roger Dodd in the Midlands, quoting reference DSG/073.

SALES EXECUTIVES
NORTHERN ENGLAND
MIDLANDS
LONDON & SOUTH

Many new company and/or new product situations turn out to be a career cul-de-sac. Here is an opportunity for experienced computer salespeople to be part of a new phase of expansion within an established major international manufacturer offering real career prospects, a comprehensive range of computer systems, extensive training facilities and a very powerful new product announcement. A company car is provided and on-target earnings will be

£25,000

Please contact Alasdair Scott in London, or Roger Dodd in Lichfield, quoting reference SSB/073.

SOUTH REGIONAL
SALES MANAGER
£30,000

If you are an experienced and successful sales manager with some knowledge of data communications equipment, this could be the best job opportunity you have had in a long time. Based in the Home Counties, our client will already be well known to those applicants already in the communications business as an outstanding, successful, enthusiastic and happy company.

Please contact Alasdair Scott in London, quoting reference SMC/073.

BRANCH MANAGER
LONDON

This is a very special opportunity for an accomplished young Sales Manager to advance into the challenging role of general management; someone with an eager, burning ambition to make a name for himself; an entrepreneur who can maximise the potential of a solution based computer business.

A seven figure turnover already exists over a number of well established vertical markets with considerable scope for creative business development.

The compensation package is negotiable with anticipated earnings around

£28,000

plus usual senior management benefits.

Please contact Alasdair Scott in London, or Alan Williams, quoting reference WMD/073.

SALES EXECUTIVES
EDINBURGH/ABERDEEN

We can assure you that whatever assumptions you make about these two jobs based on the following features/benefits, will be an undervaluation of their real potential.

* Latest product announcements at least a year ahead of competition.
* Over 25 new product announcements at least a year.
* Most of current management graduated from within the company.
* Vacancies result from expansion.
* We are talking about actual earnings, not make-believe, when we talk about

£25,000 + Company Car

If you are an accomplished computer industry salesman residing in Scotland, please call Roger Dodd in Lichfield quoting reference DSE/073.

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SALES TRAINING, MARKET RESEARCH, RECRUITMENT

SALES BIT

Quality of management – 61

A salesman's knowledge has to be diverse

I KNOW it may be a considerable shock to many readers, but my long promised book has been published. It is called *All About Selling* and is published by McGraw Hill, price £8.95.

It has been a long time coming – about three elapsed years in all – but I made it eventually.

Its appearance has caused me to reflect on a few things related to my literary efforts on the selling topic.

When a previous editor of *Computer Weekly*, Malcolm Peltu, originally agreed to publish the Sales Bit it was intended to be an occasional single column with an initial commitment of six, followed by the agreement that with a bit of luck I could soldier on for about a year. That was September 1978!

Here I am five years later, still churning two columns a week and hoping there are still a few of you out there managing to stay the course.

Writing a book is a bit like having a baby. At first it is all promise and excitement, unable to wait for the "big day", but having to. As time goes on the promise and excitement give way to discomfort and anxiety and, as the final months draw near, the greatest emotion is to get it over with and be rid of the stress of it all.

Suddenly, just when you're thinking it will never arrive, it appears, almost taking you by surprise. There it is, the fruit of your labour held in your hands.

It may be ugly, but it's all yours.

Of course, publishers and colleagues, friends and neighbours tell you whatever it is they believe an author wants to hear. What he really needs to hear is the truth, however, which may be something else.

So, it will please me considerably if any readers of my book will do me the favour of letting me have their reactions, so that I can get a feel of what the world really thinks.

Flipping through the contents page of the book I was reminded of the broad dimensions and complexities of selling as a professional occupation.

I am not referring to the typical old fashioned "company representative", but to the fully trained, accomplished salesman with a broad spectrum of industry and application experience, calling on a wide range of basic selling skills: product and applications knowledge; identifying new business opportunities; territory management; interperson communications; controlling the sales negotiations; overcoming sales resistance; closing the sale; handling political situations; and understanding business finance.

These are but a few of the areas in which the salesman must gain complete understanding and fluency of action.

As far as I can see, the diversity of knowledge, action and dicipline required is far greater than for most other professions. Most occupations tend to be predictable, governed by clearly parameterised job functions. There are clear standards of protocol within a clearly defined industry or profession.

Selling embraces all people, all industries, all products and every shade of objective or subjective behaviour. It is a minefield of problems and opportunities, in which survival is absolutely dependent on the applications knowledge and many essential human characteristics, such as sensitivity, perception and creativity.

Selling embraces all people, all industries, all products and every shade of objective or subjective behaviour. It is a minefield of problems and opportunities, in which survival depends on applications knowledge

I therefore find it quite astonishing that in this day and age selling is to many a profession with less social standing than that of the accountant, the lawyer, the doctor and so on.

Within many companies the salesman is still a "necessary evil", a fast talking trickster who may earn lots of money but belongs way down the social scale.

Let's get this right: salespeople are special!

Sure, there are plenty of people working in a selling role within the computer industry who should never be in the job, but they should not be allowed to influence our judgment of the kind of performance and achievement we should expect of a truly professional salesman.

I guess it is rather self-patronising to quote from one's own book, but I will. "Selling is the purveyor of the new, despite the suspicion and protestations of those who are secure in the comfort of the old. It is a positive agent for change, innovation and new ideas: a key factor in the expansion of a progressive society.

"Selling is a bridge between the maker and the user; it is the justification and outlet for the product of a business enterprise in its ability to persuade potential customers to try, buy and use.

"Selling is the process on which the health, growth and survival of a commercial business ultimately depends. It is the sustaining force of a free enterprise.

For those new to selling it must be clearly understood that, without the basic skills and disciplines of the profession, true and continuing success will never be achieved

"To describe it merely as a transfer of goods, services or ideas from one party to another in exchange for money is a serious understatement."

Of course, all this assumes that the salesman is constantly striving to advance and sustain his professional skills, no less so than if he were an engineer, a scientist, a teacher or an accountant.

For those new to selling it must be clearly understood that, without the basic skills and disciplines of the profession, true and continuing success won't be achieved.

Alan Williams

PUZZLE ANSWER

THE two arrangements giving the largest possible some product (58,560) are 64 × 915 and 80 × 732.